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# East Europe Report

## ECONOMIC AND INDUSTRIAL AFFAIRS

## No. 2014

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## ROLE OF PRIVATE AGRICULTURE COMPARED IN THREE COUNTRIES

Zurich NEUE ZUERCHER ZEITUNG in German 10 Apr 80 p 16

[Article by K.-E. W.: "Strong Position of Private Sector in CEMA's 'Underdeveloped Countries': Differences and Similarities Existing in Hungary, Bulgaria, and Romania."]

[Text] The three countries, the agricultural private sectors of which will be described below, show both similarities and contrasts which are evident also in their agricultural sectors, although they are collectivized along the same lines. Some of these differences stem from the existing natural conditions but, at least to the same extent, they also stem from historical preconditions and from different agricultural-political concepts.

### Decreasing Agrarian Population

Romania, which calls itself an underdeveloped country, has an agrarian population which began to recede considerably as recently as 1975. This retrogressive process began considerably earlier in the other two countries. In 1977, the 35-percent agricultural employment figure was still considerably higher than in Bulgaria (26 percent) and Hungary (22 percent). Modernization of Romanian agriculture has shown the least progress. However, its overall growth rate has been keeping in step with the Hungarian overall growth rate since the middle of the 1960's. Bulgaria's agriculture has shown the least growth since 1968 although--or possibly because--an extremely ambitious program for the creation of giant "agrarian-industrial" enterprises has been carried out since 1970. Hungary has accorded to its agricultural producers a relatively high measure of decision-making powers and has at the same time brought about a symbiosis between the socialized and the private sectors, which furthers the performance of both.

### Private Land Utilization and Social Change

The prescribed upper limits for privately utilized land allotments and for possession of private livestock depend on political restrictions or relaxations and differ considerably in the three countries. Although there are no such regulations for the cultivated land of the few remaining individual farmers, such holdings are in fact quite small in the case of each individual farm. For workers and employees outside of the LPGs [agricultural producer cooperatives], the legal norms are smaller than for those of the latter. Except for Bulgaria, during the past several years the largest part of privately worked acreage consists of plots of farms of LPG members and of paid workers of agricultural producer cooperatives.

In Hungary, 0.6 hectares per regular LPG member are permissible, so that in a household with several adult LPG workers the extent of the farm-operated acreage can be between 1 and 2 hectares. Of course, this is not really any fixed farm-held land in the precise sense of the word, because much of it is situated in the overall arable land area and is each year to be allocated at changing locations which, to be sure, is rarely done in actual practice. The Romanian LPG plots have since 1972 been fixed at 0.12 hectares per active LPG member and must not exceed 0.3 hectares per family household. Bulgaria permits considerable variation, depending on soil quality and intensity of local utilization. There, the range per LPG member of more than 16 years of age can be between 0.2 and 1 hectare, in addition to which there may under certain conditions be added another 0.1 hectare of meadow-land.

Urbanization and, in the country, de-agrarization of the population, can exert on private agricultural production activity a negative influence which is just as strong and effective in the long run as legal restrictions or other government measures. Even without any changes in the continued existence of farm-held land plots or with respect to the maximum limits set for them, the overall acreage for private utilization can suffer a reduction by a diminution of the numbers of LPG members and households. The same applies to workers and employees, since less land for garden plots is available in the cities than in the country.

Thus, the rural population in Hungary has decreased by 7 percent in the period from 1956 to 1977, the number of LPG farm-held plots has decreased by 17 percent, and the overall privately worked area by 6 percent. In the same period, the rural population in Bulgaria decreased by 20 percent, but the privately cultivated area decreased by only 7 percent, which slower reduction was apparently caused by a more benevolent government attitude vis-a-vis the private sector since 1971. In a parallel manner, the Romanian rural population and private cultivation acreage have shown a moderate increase in the period from 1965 to 1977.

Fewer Restrictions in the Sphere of Private Animal Raising

Similarly, there was a decrease in the number of privately-held cows which--in contrast to the number of privately-held pigs--is characteristic for rural and especially for LPG households. The effect of this development was intensified still more by the shift to increased urban meat demand, so that the private pig stocks in the three countries increased. Private egg production showed a particularly marked increase, a development which surely is only in part due to increased egg-laying performance, but additionally also to increased poultry stocks.

On the whole, animal raising in the LPG's is not reaching the limits permissible per household. In Romania, the maximum limit since 1965 has been 3 cows and 15 sheep, with no limitation in the number of pigs. In Hungary, the limits are established by the individual LPGs in accordance with the LPG law of 1967, and this is done in quite variable ways, more in accordance with realistic possibilities, particularly food basis considerations, than from sociopolitical aspects. It is significant that in Bulgaria the cancellation of legal upper limits has resulted in only a moderate increase of privately-held stocks. It may be that the impeding factors in this respect were feed shortages, labor costs, and poor marketing possibilities.

## Contribution to Gross Agricultural Product

According to official statistical reports, 32 percent of the Bulgarian agricultural production was accounted for by the private sector in 1965 and, 12 years later, it even accounted for 38 percent. In this connection there has since 1970, with the creation of so-called agricultural-industrial complexes which actually are state-run enterprises, come about a shift from the previously prevailing share of the LPG farm-held plot operations to that of subsidiary agricultural activities by workers and employees, who in 1977 contributed more than 80 percent of a total overall share of barely one-fifth. A similar, but not nearly as marked development, was experienced in Hungary. There, the total share (but not the absolute production volume) of the private sector dropped from 36 percent in 1965 to 32 percent in 1977 but, within it, the share of the LPG farm-held plot operations dropped from 25 percent to 17 percent.

Romanian statistics are available only for some individual products. These show the characteristic focal points of the private sectors elsewhere in East Europe, namely 1977 shares in the following categories: potatoes, 55.5 percent; vegetables, 43 percent; fruit, 54 percent; grapes, 40 percent; all kinds of meat, 43.5 percent; and eggs, 56 percent. The shares of fruit, meat, and eggs were considerably larger at the end of the 1960s. Since, with the exception of corn, the private sector generally produces only small quantities of grain and plant products for technical processing, the contribution to the gross production figure was smaller than the above-cited partial figures, but probably somewhat larger than in the cases of Bulgaria and Hungary.

## The Hungarian Model

Hungary developed a special form of intra-LPG cooperation between the latter and the privately producing members thereof. Its basic purpose consists in mobilizing private property (small stables from the former peasant era, and other similar assets), people's interest in income-producing work, and work that can be done in leisure time, by pensioners, and by housewives. In 1977, of the persons gainfully employed in agriculture were independently active in the private sector either as individuals working as family members or even for wages. In this manner it is intended to complement the large-scale mechanized operations and to raise thelevel of overall production with relatively little capital expenditure.

Such cooperation mainly takes place in the sphere of meat production and on the basis of contracts entered into between the LPGs and their members. It is provided, for instance, that an LPG member household receives young pigs from the LPG, that he fattens them and that, after the pig has attained the proper butchering weight, he returns it for an agreed-upon price. For this purupose he receives from the LPG certain quantities of concentrated feed, is permitted to keep part of the fattened animals, and in most cases the work he has done in this connection is credited to the work quota to which an LPG member is committed. Depending on the terms of such conditions, such mutual deliveries more or less appear to be purchases and sales. But the overall process is considered to be a component part of socialist production.

The details of such contractual relations may vary at different locations and for different products. What is customary in Poland and Yugoslavia as a form of contractual production of large-scale socialized enterprises carried out by individual farmers and encouraged by the state appears in Hungary as a type of contractual production carried out by the LPGs with their members and hired workers and employees. The only condition applying to all of this is that the interests of the large-scale enterprise--and particularly its personnel requirements--will not suffer any harmful effects. Of course, this leaves a certain measure of latitude for interpretation, particularly since the large-scale enterprise also profits from such relationships.

## Contribution to Personal Income

It is in the nature of things, of course, that gainfully employed urban individuals on the overall average only get a small portion of their income from subsidiary work in the agricultural sphere, although the scope of such extra work can be considerable in small towns and in the outskirts of large cities. This additional income is larger in the case of agricultural and other types of workers and employees who live in the country. However, the available statistics do not provide a proper breakdown of figures concerning this contribution to regular income, and they therefore provide us with little information in this respect. The situation concerning the availability of information sources regarding households of LPG members is more favorable and, in the case of the latter, the income contribution in the private agricultural sector is indeed the greatest.

In Hungary, the average per-capita income figures (30,000 forints in 1977) are just as high as in worker households. The latter are even lower when not taking into account social contributions. This is achieved through the additional work done on the farm-held land plots, which probably produce approximately 30 percent of the total income. The income per man-hour in LPG households (about which no statistical data are available) is therefore surely lower than that in worker households.

Romania publishes no statistics on income from private agricultural activities. However, in view of the continuing low pay for agricultural work, the unemployment which occasionally still exists, particularly in the LPC's, and the considerable productive capacity of the private sector, it may be assumed that the share of the income resulting from such private agricultural work is approximately the same as in Hungary and Bulgaria.

Bulgaria's statistical yearbooks contain no detailed information concerning the personal income sources of LPG members. Their per-household income from private agricultural extra work rose from 541 lei in 1962 to 930 lei in 1973. Since the other types of income increased more rapidly, this signified a proportionate reduction from 32.3 percent to 24.5 percent. In 1962, the share of LPG work was 44.8 percent, and in 1973 it was still 40.8 percent. Because of the creation of agricultural-industrial complexes, these statistical breakdowns refer to a shrinking area, the socioeconomic characteristics of which have changed. A reflection of this becomes apparent in the increase in the number of workers and employees in the state-run agricultural enterprises from 271,000 in 1970 to 904,000 in 1977. The 1977 distribution of income in the LPG's therefore applies to only a small circle of households. Moreover, in the latter a considerable portion of the income comes from hired work in other socialist enterprises, whereas only 16 percent comes from LPG work, and a once more increased share of 29 percent comes from work done on farm-held plots.

## Economic Development Level Is Decisive

In comparison with other countries having a collectivized agricultural system, private production in Hungary, Bulgaria, and Romania plays a particularly important role with respect to overall production, as well as with respect to the income of the agrarian population. But it is only in the case of Hungary that one can ascribe this to a substantial extent to a benevolent policy vis-a-vis the private sector. In Romania and Bulgaria, the still low level of development of the overall economy and its agricultural sphere is the decisive factor, and its influence in Hungary is also considerable. In a concluding article it will be demonstrated that a quite different picture presents itself in the case of the highly industrialized GDR and in Czechoslovakia.

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CSO: 2300

## BRIEFS

CSSR-POLISH TRADE--The CSSR's share in Polish foreign trade amounts to about 9 percent. According to agreements, the CSSR will export to Poland locomotives and railway cars; trucks; agricultural, textile and shoemaking machinery; medical equipment; roller bearings; magnesite; kaolin; metallurgical products; glass; building material; synthetics and artificial fibers. Polish exports to the CSSR will mostly include electrical engineering appliances; mining and metallurgical equipment; computer technology; textile, chemical and rubber industry machinery; electronic apparatus; coal; sulfur; and salt. [AU022015 Bratislava SMENA in Slovak 29 Apr 80 p 5]

HEAVY ENGINEERING EXPORTS FOR USSR--In 1980, the subsidiaries of the heavy engineering enterprise economic-production unit are slated to export to the USSR products worth Kcs1.833 billion, but already it is clear that the original plan will be exceeded by Kcs40 million. [AU022015 Bratislava PRAVDA in Slovak 29 Apr 80 p 1]

CSSR, USSR GAS DELIVERIES--This year the USSR will deliver to the CSSR 8.7 billion cubic meters of natural gas, according to a contract signed on 24 April in Zbraslav castle by representatives of the Metalimex Praha and Soyuzgazeksport Moskva foreign trade organizations. [Prague RUDE PRAVO in Czech 25 Apr 80 p 1]

CSSR IMPORTS USSR COMBINES--National enterprise Motokov will import over 1,300 grain combines in 1980. About 1,200 will be purchased in the GDR; they will consist of the traditional model E-512 and the advanced E-516. Romania will deliver about 120 grain combines. Czechoslovakia does not manufacture grain combines. [Prague MLADA FRONTA in Czech 21 May 80 p 2]

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## BULGARIA

# REPORT ON FULFILLMENT OF ECONOMIC PLAN FOR FIRST QUARTER OF 1980

Sofia RABOTNICHESKO DELO in Bulgarian 24 Apr 80 p 3

[Announcement of the Committee for the Unified System for Social Information of the Council of Ministers on the basic results of the fulfillment of the uniform plan for the socioeconomic development of the Bulgarian People's Republic in the first quarter of 1980]

[Text] In the first quarter of 1980 the socioeconomic development of the country took place under the sign of implementing the requirements of the economic approach and the systematic application of the new economic mechanism. The initiative of labor collectives in discovering new reserves and upgrading effectiveness in all fields and activities of the national economy increased.

In terms of basic quality indicators, the first quarterly plan for 1980 was fulfilled as follows:

- Net output, 101.2 percent;
- Social labor productivity, 102.8 percent;
- Net output per 100 leva productive capital, 103.2 percent.

The use of modern technology in production, the discovery of new reserves for the conservation of material and manpower resources, and the systematic reconstruction and modernization of productive capacities in the first quarter remained the center of attention of the management of economic complexes, ministries, departments, and economic organizations.

During the quarter 139 new and improved items, 252 new and improved technologies, 63 designs for automated systems, and 40 new and improved vegetal strains were introduced.

In the first three months of the year capital investments used in the national economy totaled 931 million leva. A total of 450 million leva were spent in modernizing, reconstructing, and expanding existing production capacities.

## 1. Industry

Economic complexes, ministries, economic organizations , and their branches in industry carried out a number of additional measures to implement their quarterly assignments.

The implementation of the plan for industrial commodities produced and marketed by basic economic ministry and department was as follows:

| Fulfillment of the first quarterly plan for 1980 in percent | Produced Commodities | Income from Commodities sold |
|---|---|---|
| Total | 100.9 | 97.3 |
| Ministry of Power Supply | 100.9 | 107.1 |
| Ministry of Chemical Industry | 103.2 | 98.0 |
| Ministry of Machine Building | 104.0 | 102.0 |
| Ministry of Electronics and Electrical Engineering | 100.8 | 100.2 |
| Ministry of Light Industry | 104.6 | 95.9 |
| Ministry of Metallurgy and Mineral Resources | 101.0 | 88.2 |
| Ministry of Transport | 102.6 | 96.2 |
| Ministry of Internal Trade and Public Services | 102.1 | 93.6 |

Lagging in the fulfillment of the plan for the production of basic commodities by some economic combines and branches, as well as the delayed shipping out of commodities produced in January affected the fulfillment of the first quarterly plan in terms of monetary income from sales of commodities. This influenced the nonfulfillment of the plan by some ministries and okrugs.

Production of Industrial Commodities

| Item | Measure | Output in the first quarter of 1980 | Planned fulfillment of the first quarter of 1980 in percent | First quarter 1980 in % of first qtr. 1979 |
|---|---|---|---|---|
| Electric power | million kw hrs | 9739 | 100.9 | 109.2 |
| Pig iron for processing | tons | 369838 | 99.1 | 98.6 |
| Rolled ferrous metals | " | 759377 | 100.2 | 101.9 |
| Lathes | pieces | 2292 | 98.8 | 137.0 |
| Forklift trucks | " | 14491 | 111.9 | 118.9 |
| Electric hoists | " | 29923 | 100.6 | 103.7 |
| Electric motors | " | 301672 | 101.6 | 113.6 |

| | | | | |
|---|---|---|---|---|
| Power transformers | pieces | 1841 | 105.5 | 117.1 |
| Typewriters | " | 39837 | 112.2 | 143.1 |
| Calcinated soda | tons | 369757 | 100.5 | 104.1 |
| Nitrogen fertiliser (including carbamide) | " | 192960 | 100.0 | 122.6 |
| Cotton fabric | thou. meters | 84736 | 104.2 | 96.4 |
| Sterilised canned vegetables | tons | 24073 | 113.6 | 82.0 |
| Meat | " | 96025 | 98.3 | 99.3 |
| Butter | " | 5073 | 101.5 | 108.5 |

As a result of the increased production of some basic commodities, the plan for the overall industrial output for the first quarter was overfulfilled. Compared with the same period of 1979 industrial output rose 4.1 percent.

The output of industrial sectors resupplying the national economy with new equipment and securing our basic raw material and power resources rose at a faster pace. The share of the machine building, chemical, metallurgical, and power industries in the overall volume of industrial output reached 45.9 percent, exceeding the annual planned figure (43.5 percent). The intrasectorial structure of the machine building industry continued to improve. The production of computer and office equipment, instruments, automation facilities, and others is developing at a high pace.

Compared with the first quarter of 1979 capital investment in the chemical and rubber industries rose 3.8 percent; they rose 30.9 percent in the machine building and metal processing industries.

Industry fulfilled its net output plan 103.4 percent. A greater increase in net output was achieved, entirely due to higher social labor productivity.

## II. Agriculture

In the first quarter of 1980 agricultural activities were characterized mainly by the production of animal husbandry products and a certain amount of field work.

Compared with the same date in 1979, on 1 April 1980 livestock in agricultural organizations and branches had increased as follows: cattle, 1.4 percent; hogs, 0.7 percent; poultry, 2.1 percent. The number of cows declined by 1.1 percent and of sheep by 4.3 percent.

In public animal husbandry, compared with the same period in 1979, production rose by 2.8 percent for milk and 1.9 percent for eggs.

Purchases From All Category Farms

| | Measure | First Quarter 1980 | Fulfillment of quarterly plan in percent | First Qtr. 1980 in percent of First Qtr. 1979 |
|---|---|---|---|---|
| Cattle and poultry in slaughtered weight | tons | 97367 | 100.9 | 97.9 |
| Milk (3.6 percent fat content) | thousand liters | 407785 | 97.2 | 99.5 |
| Eggs | Thousand pieces | 355147 | 102.5 | 104.8 |

Seventeen okrugs overfulfilled their cattle and poultry purchases plans as follows: Kurdzhali, 41.1 percent; Sofia City, 25.0 percent; Sofia Okrug, 20.7 percent; Kyustendil, 14.7 percent; Burgas, 13.1 percent; Pernik, 12.7 percent; and Sliven, 9.6 percent. Eleven okrugs failed to fulfill their plans, including Vratsa, Silistra, Pleven, Mikhaylovgrad, and others.

## III. Contruction

In the first quarter the construction and installation organizations completed construction work worth 581 million leva, 116 million of which housing construction. The construction output quarterly plan was fulfilled 83.0 percent.

Productive capital worth 456 million leva was completed and delivered. Important priority projects were commissioned, such as the third block of the Maritsa-Iztok-3 TETs, the sixth block of the Varna TETs, the iron casting plant in Ikhtiman, and others.

The ministries of metallurgy and mineral resources, machine building, and chemical industry overfulfilled their quarterly plans for the commissioning of productive capital in particularly important target projects. In this respect the Ministry of Power Industry fell behind. Schedules for the completion of priority projects are not being fulfilled. This includes the Troyanovo-Yug Mine, the production facility for catalytic cracking, polypropylene and vacuum distillation with heat cracking of the petroleum refinery in Burgas, the priority production capacities of the Kremikovtsi and Lenin Metallurgical Combines, and others.

## IV. Environmental Protection

A total of 30 million leva were spent in environmental protection in the first quarter, 22 million of which in capital investments. New electric filters were commissioned at the Purva Komsomolska TETs in Gulubovo, V. Pik State Cement Plant in Beli Izvor, and the Zlatna Panega and Devnya State Cement plants.

Work is continuing on the building of 14 urban treatment stations and 22 electric and sleeve filters in cement plants, metallurgical combines, and others.

## V. Transportation and Communications

Compared with the first quarter of 1979 income from transportation, loading and unloading, and shipping activities rose 9.4 percent. The public use transportation system hold 94,000,780 tons of freight or 3.6 percent above the plan. The plan was overfulfilled by the railroad transport system by 3.2 percent and the trucking system by 6.0 percent. A total of 637 million passengers were transported and the quarterly plan was overfulfilled 1.3 percent.

During the quarter the income of economic public use transportation organizations was 1.1 percent below the planned income from operational activities. Plans were not fulfilled by the Bulgarian State Railroads Economic Trust and the Automotive Transportation Economic Trust. Eighteen okrugs, including Turgovishte, Vidin, Stara Zagora, and others did not fulfill their plans.

The work done by the rail transportation system involved mainly the use of electric traction--58.5 percent.

The plan for income from communications services was fulfilled 103.4 percent. The postal network was expanded by three postal, telegraph, and telephone stations in the villages. A total of 23,458 new telephone sets were installed, 18,436 of which in private homes.

## VI. Foreign Economic Relations

Bulgarian foreign economic relations are continuing to develop successfully. Foreign trade rose 13.8 percent compared with the same period in 1979.

The bulk of the foreign trade is with CEMA-member countries and, above all, the Soviet Union.

Our trade-economic cooperation with the nonsocialist, particularly the developing, countries was marked by further progress. Compared with the first quarter of 1979 trade with the developing countries rose.

The overfulfillment of the export plan for the first quarter was 111.2 percent. Positive changes occurred in the export structure. The share of machines and equipment continued to rise. Compared with the first quarter of 1979 more machines and equipment for industrial use were exported.

## VII. Population Living Standards

The growth of output created real prerequisites for upgrading the living standard of the people.

Average monthly wages rose, reaching 180 leva in industry and 202 leva in construction.

The population's income continued to grow through the social construction funds. In the first quarter pensions totaling 407 million leva were paid out, or 22.6 percent more than in the first quarter of 1979. Higher amounts were paid out in aid as well. During the quarter, the insurance institutes alone paid 180 million leva in monthly supplements to wages for children.

The retail trade network sold goods worth 2,627,000,000 leva. The retail trade plan was fulfilled 102.9 percent.

Sales rose as follows: milk, 3.2 percent; rice, 7.5 percent; sugar, 5.5 percent; fish and fish products, 4.1 percent; vegetable cooking oils, 2.6 percent; woolen fabrics, 12.8 percent; clothing, 15.1 percent; shoes, 3.9 percent; furniture, 24.8 percent; vacuum cleaners, 16.5 percent, and so on. At the same time, however, because of limited supplies of commodity stocks, less meat, fresh fruits and vegetables, electric washing machines, and others were sold.

The results achieved in the implementation of the unified plan for the socioeconomic development of the Bulgarian People's Republic in the past quarter are the base for the fulfillment of the tasks of the final and decisive year of the Seventh Five-Year Plan. The successful completion of the year requires the even more extensive development of the nationwide socialist competition for the further discovery of reserves for the fulfillment of the plan for all indicators and for the implementation for the strategic line of the BCP for high effectiveness and high quality.

Committee for the Unified System for Social Information
23 April 1980, Sofia. (BTA).

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CSO: 2200

CZECHOSLOVAKIA

## FURTHER COMMENTS ON ECONOMIC REFORM PUBLISHED

Prague HOSPODARSKE NOVINY in Czech 28 Mar 80 p 3

[Article by Eng Vladimir Horalek, State Planning Commission: "Towards the Improvement of the Planned Management System"]

> [Text] One of the main ways that the Set of Measures for the Improvement of the Planned Management System of the National Economy will pursue the achievement of its decisive goal, i.e. contributing to the increased effectiveness of economic development after 1980, is by more consistently integrating two important management elements of a socialist economy: management by the plan and khozraschet. At the same time steps are being taken so that on the one hand elements of khozraschet management and their related systems of material incentives aid in the creation and implementation of demanding and realistic plans and, on the other hand, so that the plan guides with sufficient precision the khozraschet activities and creates the conditions for its efficient application. At the same time, at all management levels the system of plans must play the role of the fundamental instrument for bringing about a turnaround in the overall efficiency, material, energy and workmanship sophistication of production, in the technical level, quality and competitiveness of our products, especially on the basis of the application of the progressive results of scientific and technical research.

The following measures in particular are directed at improving the position of the plan within the management system:

1) strengthening prospective nature of planning;

2) more consistent and concentrated application of the target program approach;

3) orienting plan indicators primarily to the qualitative aspect of production;

4) taking the internal proportionality of plans as the decisive methodological criterion of their quality.

## Strengthening Plan Prospectiveness

Two main avenues are being pursued to strengthen the prospectiveness of planning: developing systematic work on long-range planning and, in conjunction with this, strengthening the management role of the five-year plan.

Long-term work is supposed to develop into a permanent activity from which the formulation of five-year plans will organically evolve, and the results of which will always be made more precise on the basis of each five-year plan. It is essential that the scientific workplaces, including the Academy of Sciences, become more intensively engaged in these tasks, particularly in the area of predicting the basic directions of scientific-technical development in the CSSR and in the world.

At the present time work is underway on a long-term projection of social and economic development between now and the year 2000. Within this framework we are proceeding so that this year's tasks are focusing in particular on the requirements for the formulation of the Seventh Five Year Plan, in 1981-1983 on the formulation of long-term comprehensive programs and long-term conceptions for the main branches, and in 1984 and 1985 on a cumulative formulation of a long-range outlook, coordination with CEMA member countries and the laying of the foundations for the Eighth Five-Year Plan. Central agencies and relevant economic production units will be integrated into these efforts with the task of working out solutions (alternative solutions) to developmental questions specific to the branches or sectors.

The change in the position and function of the five-year plan and its relationship both to the yearly plans and to the whole system of material incentive instruments and other economic conditions must be considered the most fundamental and the most demanding principle in the conception of measures in the area of planning. The five-year plan, divided into individual years, is to become the fundamental planning form and the basis for the organization of economic activities at all management levels. This principle stems, above all, from the fact that not only at the national economic level, but also at the level of the economic production unit, the need has been becoming steadily more evident for the plan to formulate and implement those measures which, in their time frame, more or less overlap the period of a single year and require longer-range knowledge both of development objectives and the economic conditions under which they will be realized.

The strengthening of the long-range character of planning is also intended to eliminate to the maximum extent the short-term approach in organizational behavior and to overcome the current practice, in which the setting of goals according to intrayear indexes of the development of individual indicators on the basis of the previous year's results has become the norm, and which has often led to the carrying out of lower plan tasks, to a holding back of potential for production increases and improved efficiency and at times to the irrational expenditure of resources limited to a given year.

The decisive aspect in the relationship of the five-year plan and the yearly plan is that the five-year plan, introduced into the economic production units and, to the greatest extent possible, into the organizations which they manage, must become not only the starting point for the formulations of their yearly plans, but also a system of established dependencies between qualitative objectives and the instruments of material stimulation, it must generate pressure for the overfulfillment of five-year-plan goals in the yearly plans and at the same time penalize underfulfillment. The basis of these dependencies will be, on the one hand, especially indicators of adjusted added value, profitability of the production funds, profit and exports, and on the other hand, wage funds in their basic and incentive components, the development fune for the financing of limited investments and the fund for the material stimulation of exports. The stimulation of counter-planning, as a decisive form of worker participation in the formulation of yearly plans, will also be based on these dependencies.

This is a change of extraordinary significance in light of current experiences and practice, in which year after year the objectives of the proposed yearly plans are not nearly met, and the resource limits fixed by the directives for yearly plan formation are far exceeded. The consistent carrying out of the proposed system will mean for economic production units and enterprises both the possibility of increasing their sources of material incentives by taking on higher qualitative objectives, but also the danger that these sources will be significantly reduced for failure to assure five-year plan objectives. Changes in the inspection and evaluation of plan fulfillment will also correspond to the new system and will place major emphasis on fulfilling the five-year plan from its beginning. A basic criterion of plan-fulfillment evaluation and overall organizational activity here must be the meeting of established sales targets, of objectives in the implementation of the results of scientific-technical research and its economic contributions, the growth of overall efficiency, quality, export performance and the creation of the prerequisites for the future development of the organizations themselves.

With the goal of applying the above dependencies at the stage of the formulation of the 1981 implementation plan, it is necessary that the directives for the working out of the 1981 plan assume the function of the five-year plan, and that the qualitative indicators introduced as the basis for the stimulation of proposals and the adoption of a more progressive yearly plan for the coming year be established within the framework of its elaboration.

From the viewpoint of the longer range validity of the five-year plan targets and of the economic constraints limiting them, and from the viewpoint of the plan's ties with the yearly plans, it is also necessary to mention that the Seventh Five-Year Plan must be recalculated on the basis of new prices, valid as of 1 January 1981 and 1 January 1982; in relation to this, new rates for transfer payments to the federal budget will also be established with validity beginning on 1 January 1983. This will effect all evaluative indicators and material incentive instruments and all other economic conditions. During the resolution of these questions special measures will be formulated guaranteeing that this recalculation will not lead to a violation of the proportions, or a lowering of the objectives for efficiency growth incorporated into the plan.

Efforts to stimulate the overfulfillment of the five-year plan objectives in the yearly plans point to the fact that the role of the yearly plans has not been weakened, and indeed cannot be weakened. It is assumed that the directive for the formulation of the yearly plan, as currently understood, will not be applied, but at the same time there is a presupposed central concentration of efforts, in preparing each yearly plan, and even in counterplanning, on those concrete objectives to which the evolution of domestic and foreign conditions has given a new importance or greater urgency than established for them in the five-year plan. The basic objective of the yearly plans will be to guarantee and organize the fulfillment of the main objectives and goals of the five-year plan in a manner corresponding to the course of their implementation. In the event of substantial deviations from the original objectives and presuppositions, especially due to foreign influences, it will be necessary to return to the five-year plan for the relevant management level and up-date it according to new objectives, conditions and requirements.

This strengthening of the prospectiveness of planning is, in other words, also accompanied by attempts at increasing the flexibility of the economy and all its components in reacting to newly arisen requirements and possibilities. This relates primarily to an increase in the export performance of our economy and the implementation of scientific-technical progress, to the challenges of which production must react flexibly in terms of product mix, delivery readiness, product innovation, etc.

An attempt to achieve greater stability, then, does not mean the absolute unchangeability of objectives and rigidity of the economy.

It is pursued for precisely the opposite reason, i.e. so that all management levels, given a knowledge of the longer range goals, objectives, limits and economic constraints, can more flexibly than heretofore react to the changing requirements of the national economy and utilize the greater operational freedom provided by this strengthening of long-range planning to meet these requirements. A system of reserves, which will also be gradually created, should also assist in meeting this objective.

## Target Program Approach

The more consistent and centralized application of the target program approach is directed above all at the assurance of critical macroeconomic qualitative adjustments on the basis of a more rapid and consistent implementation of the results of scientific and technical research. The basic means for the application of the target program approach in planning are to be:

--long range comprehensive programs prepared within the framework of work on long range projections; they are to express, in the necessary context, fundamental macroeconomic adjustments in economic and social development founded primarily on the implementation of scientific-technical development results and on the intensive and efficient incorporation of the Czechoslovak economy into the international division of labor, and especially into international socialist economic integration;

--federal target programs worked out during the preparation of the five-year plan, which will represent basic structural changes in the economy and will be oriented towards critical objectives in the implementation of scientific-technical development and approved projects of international socialist integration, the rational management of material resources, an increase in the export capability of the economy, etc.; the extent of the programs will be significantly restricted in comparison with current practices with the objective of significantly concentrating our forces on decisive sectors;

--long-range target programs of cooperation with the CEMA member countries, the objectives and fulfillment responsibilities for which will be specifically expressed in all relevant parts of the plans.

In formulating all these programs it is necessary that at every management level the achievement of the greatest effects be guaranteed in the shortest possible time and with the smallest possible demands on social resources; in no way is it possible to consider the preparation of these programs as an opportunity to assert disproportionate requests.

Within the framework of preparing the Seventh Five-Year Plan a number of federal target programs are presently being developed that are directed at developing fuel and energy resources and the rationalizing their consumption; rationalizing metals consumption, developing of the finished-product and component-part branches of engineering; expanding the manufacture of selected chemical products; modernizing the textile industry and warehouse management; as well as developing modern transportation systems.

## Focusing on the Qualitative Aspects of Production

The orientation of plans toward efficiency and quality must be manifested in their "means of expression," i.e. in the system of indicators in terms of which the objectives, limits and economic constraints are expressed by the plan. It is primarily a question of improving plan indicators so that they more efficiently measure the effect all levels and agencies of economic management have on the effective course of the production process, on an intensification of social production, on the increase of product quality and necessary product innovation, on the improvement of the technical sophistication of production and a lessening of fund-, material- and labor intensiveness. The most fundamental measure in this area is the introduction of indicators of the net production type in the form of an added-value indicator.

An efficiency viewpoint must penetrate, at all management levels, to the formulation of the plan, to the articulation of objectives and their implementation. Efficiency indicators such as profitability, materials consumption per unit of output, labor productivity, import-intensiveness, etc. are to be considered decisive.

Indicators expressing the parameters and implementation of research and development objectives, price constraints on new products, an increase in the kilogram price of exported products, etc. are to be emphasized.

Much greater emphasis must be placed on the very formulation of efficiency indicators, primarily by means of the analysis and determination of those factors which influence the evolution of these indicators. This is particularly true of such indicators as labor productivity, the evolution of costs, the utilization of capital resources, etc. Insofar as it is a question of output quality and efficient product-mix innovation, first quality, technically sophisticated, fashionable and luxury products are expected to claim an obligatory share of the plan and in conjunction with this to be granted more advantageous prices. At the same time the system already in operation for penalizing low quality output will continue to be applied and developed further. In connection with the question of the system of plan indicators it is necessary to emphasize in addition that it can not only be a matter of a change in indicators, of the replacement of some by others, that no indicator in and of itself is ideal and can solve all problems. It is a matter primarily of a change in the overall approach to decision-making, to the formulation of the plan and its material content, of a change in economic thinking at all management levels and of the approach to compensation.

## More Consistent Internal Plan Proportionality

The guaranteeing of greater plan effectiveness is placing significantly greater demands on its quality, the fundamental methodological criterion of which must be its internal consistency, founded on high, but realistic objectives for efficiency growth. Therefore great emphasis is being placed on the refinement of a system of mutually integrated balances of all types, from those for comprehensive evaluation (especially structural and marketing) right through to a system of materials balances.

Special emphasis is being placed on a system for balancing material relationships, where in the past and at the present time there have been and are the most serious and numerous disruptions and disproportions, the reasons for which, however, often rest in the most disparate sectors of the production process (the work force, capital investment, the mastering of the techniques for and quality of output, transportation, etc.) and result in disruptions in material-technical supplying and in supplier-consumer relations. It is necessary to emphasize, precisely in this regard, that the functions of balances must be given a priority orientation towards recognition of the required structure of production and the economics of consumption and its many-faceted satisfaction, and only secondarily towards their allocative function.

Right here the necessity becomes urgently clear to not only manage according to the plan, but at every moment to manage and make decisions according to the plan, in its spirit, in accordance with the requirements and suppositions on which it has been founded, and to consistently carry these out.

The methodological suggestions for the working out of a proposal for the Seventh Five-Year Plan and for the 1981 implementation plan are directed, in accordance with the Set of Measures, towards a more intensive integration of the individual parts of the plan in the area of production and the application of this production both in overall marketing categories and in more detailed, purposeful division (for instance, deliveries of technological apparatus and construction tasks for capital investment in existing, obligatory and centrally supervised construction projects, deliveries for export within the sectoral structure, within selected investment units, etc.). In the planning of production the above-mentioned classification of overall production volume according to a system of indicators is already in use. These indicators express volumes, shares and product structure for new products, technically sophisticated products, new and substantially altered consumer goods, products chosen for a required quality evaluation, products of the first level of quality, products and technologies stemming from the implementation of the scientific and technical development plan, products manufactured under license, etc.

The integration of selected target programs and the scientific-technical development plan with the remaining aspects of the plan will be elaborated in more detail in the plan proposals.

The intentions of federal target programs will be verified, on the one hand, from the viewpoint of the relationships between the input and labor resources, investment and foreign currency needs, as well as the demands to be put on the plan for basic research and technical development, and on the other hand between the quantitative contributions of these programs and their qualitative characteristics.

In the area of the planning of scientific-technical development all management levels will, in their plan proposals, elaborate in more detail the integration between all aspects of the research-development-production-utilization cycle, the direct relationships between the scientific and technical development plan and the intentions of the federal target programs and its relationships to the other parts of the plan (to design work, capital stock re-production, foreign currency procurement, etc.)

At the same time the expression of the implementational approaches of the scientific-technical development plans of individual branches are to be specified, particularly in relation to their contributions to increasing the efficiency of this development (labor productivity, costs. etc.)

The special attention of all levels of management during plan formulation is to be focused on the methods for assuring proportionality between the re-production of capital stock and the re-production of work force in a branch and area cross-section from the viewpoint of the relationships between the utilization of the existing capital stock, shift policies, workplaces, new capital investment and the liquidation of unneeded capital stock.

If we want to talk about the methodological prerequisites for an increase in the internal integration of plans, it is necessary to emphasize that it is to a decisive extent conditioned by the quality of the system of technically justified norms, especially norms for the consumption of live and materialized labor. Therefore, the Set of Measures calls for the formulation of long range programs for the creation and systematic implementation of norms in each of these areas.

The proposed measures in plan formulation represent only the systemic and methodological prerequisites for higher quality in plan balance. The level of the work of those who formulate the plan at individual levels will be critical. If they continue to incorporate deliberatly exaggerated demands into the plan and into all types of balances, or to underestimate actual requirements, or if the results of the balancing are not consistently incorporated into all relevant sections of plans, then we will not reach the goal we seek.

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# POSSIBILITIES OF NONFOSSIL NONNUCLEAR ENERGY VIEWED

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[Article by Eng Miroslav Cibula, State Planning Commission: "Opportunities for Exploitation of Domestic Nonfossil and Nonnuclear Sources of Energy"]

[Text] When dealing with the future development of our power base, exploitation of the hitherto nontraditional sources of energy is gaining in importance. The most significant role in meeting the anticipated increments in energy requirements over the next decades on a global scale is attributed to nuclear power engineering, next to which the efforts of sciences and technology focus on more intensive exploitation of solar, geothermal and tidal energy. Furthermore, the new situation in the power economy leads to a reassessment of the approaches to the traditional sources whose exploitation under the technical and economic conditions in the past was not lucrative: small-scale hydroelectric power, wind power, mining of fuels in lesser deposits, utilization of low-grade fuels with low qualitative indicators, etc.

Together with the estimated possibilities of the hitherto nontraditional natural nonnuclear resources (solar, geothermal and wind energy), intensified exploitation of traditional sources of lesser importance means but a minor contribution in terms of the volume in the total balance of sources of energy required in the CSSR. With our outlooks and opportunities for supplying the sources of power, however, their exploitation cannot be disregarded; nevertheless, it must conform to the current criteria of national economic and social efficiency.

With a share of about 97 percent, such fossil sources as coal, oil products and heating gases continue to play a vital role in the consumption of primary power in the CSSR. The rest is covered by so-called primary electric power from nuclear and hydroelectric power plants and from imports.

The gradually shrinking share of our domestic resources and the increasing dependence on imports is typical for the CSSR. While the share of our domestic sources of energy in the Czechoslovak consumption of power was 98 percent as recently as in 1960, that share will drop to under 62 percent in 1980. The 1960-1975 period was particularly decisive for that development, because then Czechoslovak consumption of domestic coal and other less important resources increased by mere 7 percent, while the volume of imported fuels and power increased fivefold. The share of our domestic power resources dropped most significantly in the 1971-1975 period, when the entire increment in the consumption of power in the CSSR was covered with increased imports, especially those of high-grade fuels. The worldwide energy crisis and the skyrocketing prices of imported fuels led to a reassessment of that trend, to stepped-up production of domestic fuels, and to their role in the solution of the needs of our fuel and energy balance. In the 1976-1980 period our domestic resources will cover as much as almost one third of the increment in our consumption of energy. Assuming that our nuclear power industry built on the basis of our own raw material, uranium, with a major share of nuclear technology manufactured by our engineering industry, will be regarded as our own source of energy, then the share of our own sources of energy may cover up to 50 percent of the increment in the consumption of power. According to this concept, the absolute share of our sources of power in total consumption will reach the level of 70 percent in the 1980's. This objective means substantial alleviation of the future growth of demand for imported fuels and energy.

When implementing such objectives, exploitation of economically attainable domestic sources of lesser importance, such as small hydroelectric power plants, geothermal sources, solar energy, combustible wastes, and so on, is not negligible. It appears that their acquisition does not encounter any major problems of a technical and economic character, but rather that it demands that the antiquated approaches to the evaluation of their function and of their contribution to our economy be overcome.

## Better Exploitation of the Primary Water-Power Potential of Czechoslovak Rivers

The first state water-management plan of 1954 assumed that the primary hydroelectric potential of Czechoslovak streams might generate 9.6 billion kWh of electric power in 1 year of average water conditions. Its revised version of 1975, which proceeded from different assumptions, considered only those sites where it was feasible to build hydroelectric power plants with more than 5 MW installed capacity for exploitation over at least 4 hours a day. That version set the technically exploitable hydro-power potential of the CSSR at 9 billion kWh/year, with the CSR holding about 30 percent and the SSR 70 percent of the share of the exploitable water potential, with a major part (2.5 billion kWh/year) derived from the exploitation of the Danube.

Recent studies conducted by research institutes reduced the attainable potential of Czechoslovak rivers by losses in hydro-power engineering stemming from the consumption of water for purposes unrelated to power engineering in the extent of approximately 350 million kWh/year, and increased it by possible construction of additional small hydroelectric power plants not included in the Second Guiding Water Management Plan of 1975, in the amount of 853 million kWh/year, of which 736 million kWh/year in the CSR and 117.4 million kWh/year in the SSR.

Table 1

### Primary Potential of Rivers Technically Exploitable for Water-Power Engineering in the CSSR (in billion kWh/year)

| | |
|---|---|
| State Water-Management Plan of 1954 | 9.64 |
| Second Guiding Water-Management Plan of 1975 (only hydroelectric power plants over 5 MW included) | 9.02 |
| Potential utilized in water-power engineering as of the end of 1978 | 3.46 |
| Estimated reduction due to consumption of water for purposes other than power engineering | -0.36 |
| Estimated increase after inclusion of small hydroelectric power plants not included in the plan | 0.85 |
| Total extent of potential construction of additional hydroelectric power plants | 6.35 |
| Of which: | |
| over 10 MW | 4.67 |
| under 10 MW | 1.68 |

Over the past 10 years, Czechoslovak hydroelectric power plants produced an average 3,620 million kWh annually, with deviations approximately in the range of ± 500 million kWh, depending on the average annual precipitation and the average registered annual waterflow in the rivers. These data include only the so-called production of primary electric power; secondary electric power, generated by pump/storage processes in appropriately adapted hydroelectric power plants, is not included in the above capacity. In a year with average water conditions, hydroelectric power plants in operation may generate 3.46 billion kWh of primary electric power, which means that, thus far, we have been using only 35.9 to 38.3 percent of the technically accessible primary hydroelectric potential of our rivers (the range corresponds with the data of the two above-mentioned variants of the water-economy plans). With the inclusion of the Czechoslovak share from the capacity generated by the water works now under construction on the Danube, which we are building jointly with the Hungarian People's Republic, the exploitation of our water engineering potential will increase to about 60 percent. If water power in the CSSR is further exploited along the lines of the Second Guiding Water-Management Plan, its exploitation will amount to about 75 percent in the year 2000. These objectives seem to be jeopardized especially as concerns the construction of small hydroelectric power plants. The construction of larger hydroelectric power plants, including the repumping ones, proceeds in principle according to the requirements of the development of the Czechoslovak electrification system, especially as regards the needs of the peak and repumping capacities.

In addition to the hydroelectric power plants on the Danube at Gabcikovo (Czechoslovakia's share: 300 MW, 1,325 million kWh/year) and Nagymaros

(Czechoslovakia's share: 39 MW, 256 million kWh), the construction of repumping hydroelectric power plants is now under way on the Cierny Vah River (660 MW) and at Dlouhe Strane (600 MW), as well as of hydroelectric power plants at Kralova (45 MW) and Neded (9 MW); construction on the sites at Slatinka (42 MW), Horny Vah (120 MW), Dolny Vah II (76 MW), and Hnevkovice (20 MW) is now in the planning stage, as is the construction of two large pump-storage hydroelectric power stations.

In view of the extent of demands for electric power, based primarily on the construction of large-capacity thermoelectric power plants, the share of hydroelectric power plants in electric power generation in the CSSR will continue to decline--for instance, in the 1960-1978 period, it dropped from 10 percent to 5.9 percent. At present the Czechoslovak electric system is already covering the semiannual increment in the consumption of electric power, amounting to 3 to 4 billion kWh, which means that if the entire remaining primary water-engineering potential (6.3 billion kWh) is utilized, we shall cover our expanding demands for power for no longer than 2 years. At the same time, it will require scores of years to complete the volume of construction on which this assumption is based. Naturally, this does not imply that we should relinquish the contributions of power derived from the more efficiently utilized potential of our water-power engineering, because that contradicts the optimum solution of prospective consumption of energy in the CSSR. Exploitation of water power will not only expand our potential in gaining additional primary sources of energy, but also achieve the most advantageous proportions in the structure of the peak and basic capacity sources of the Czechoslovak electrification system.

For that reason, the installed electric capacity of the hydroelectric power plants on dams is selected so that the disposable potential of water power may be used only to cover the peak load zones for consumers of electric power. If that is not possible, thermal peak sources of heat, which as a rule burn high-grade fuels (gas turbine units, special flexible peak stem electric units) must be built in the electrification system. Ample opportunities are still open for meeting future demands for peak capacities of electric power plants by building peak hydroelectric power plants. According to the data in Table 2, which describe our methods of their exploitation, installed capacity of hydroelectric power plants increased in 1960-1978 only 2.3 times, while total installed capacity of Czechoslovak electric power plants increased 2.8 times.

Implementation of current objectives concerning the construction of large hydroelectric power plants, particularly the repumping power plants, will raise their share in installed capacity of electric power plants approximately to 18 percent before 1990, which corresponds with the conceptival objectives in the construction of repumping hydroelectric power plants as supplementary sources utilizing the nighttime surplus of electric power from nuclear power plants. The territory of the CSSR offers ample opportunities for the construction of pump-storage hydroelectric power plants in the future. According to certain studies, they are estimated at more

Table 2

| Year | Installed Capacity in MW<br>CSSR total | <br>of which hydro-electric power plants | Share of Hydroelectric Power Plants in percent |
|---|---|---|---|
| 1960 | 5,715 | 945 | 16.5 |
| 1978 | 16,093 | 2,215 | 13.8 |
| Increment in 1960-1978 | 10,378 | 1,270 | 12.2 |
| Index 1978/1960 | 281.2 | 234.4 | 83.6 |

than 20,000 MW installed capacity. Their exploitation will have a long-term effect on conceptual objectives in the building of the most advantageous structure of capacity sources in the Czechoslovak electrification system. Moreover, CEMA organs are evaluating the possibilities for joint construction programs and international exploitation of repumping hydroelectric power plants for regulation of frequency and supply of capacities within interconnected electrification systems. It appears that in the immediate future it will be advantageous to give priority to the exploitation of those sites where it is feasible to build pump-storage hydroelectric power plants in order to cover daily peak load zones over an extended period.

A very unsatisfactory situation has gradually developed in the area of small hydroelectric power plants of local importance. Not only have the positive incentives for their further construction become ineffective, but the owners of such sources of power are no longer interested in their simple restoration. The operations stopped, and many small hydroelectric power plants have been physically liquidated. Vigorous exploitation of some water works has been suspended or curtailed by the changing interests of other users of water. Due to an inadequate long-range program, the Czechoslovak manufacturers of equipment for small hydroelectric power plants abandoned its production. There is a shortage of spare parts and of capacities for maintenance, remodeling, and resumption of operations in small hydroelectric power plants built in water works whose structure is otherwise well maintained. In many cases, for instance, in the construction of a navigation weir on the Elbe River, plans for the exploitation of water power have been abandoned because of the contradictory interests of the users of the waterflow or source (consumption of industrial and drinking water, river navigation, power engineering, etc.). The situation was further complicated by regulations indiscriminately applied when assessing the compensation for the use of the water works, by problems with the allocation of the investment and operational costs among individual users, and so forth. The most significant negative factor may be the economic atmosphere gradually emerging in the supply of fuels and energy, where the consumers find it more advantageous to rely on electric power supplied from the state-wide electrification system. In many enterprises, operation, upkeep and modernization of buildings and technological equipment of small hydroelectric power plants were regarded as an unnecessary burden to be avoided by the use of power available from large-capacity power plants. By the same token, precisely the historical origin, the deployment, and also the further development of great many plants of Czechoslovak heavy and consumer industries were related to potential exploitation of the capacity of local sources of water power (originally with the aid of water wheels, later from hydroelectric power plants). Recent developments in power engineering unequivocally call for a radical change in that situation which is no longer tenable.

In 1930, 12,963 small hydroelectric power plants with 229 MW total installed capacities were registered on the territory of the CSSR. In 1953, only 5,471 (2,320 of which were practically no longer in operation), and 13 years later, only about 600 remained in operation. The current situation has not been adequately documented. According to statistical data, 45 MW installed in industrial hydroelectric power plants were operated by enterprises of industrial ministries toward the end of 1978, and 167 MW were installed in public hydroelectric power plants with capacity up to 10 MW. In 1978 the share of small hydroelectric power plants in the total production of industrial power plants was 1.3 percent, and of small hydroelectric power plants in the total production of public power plants was 0.8 percent.

Changes in approaches to the construction of small hydroelectric power plants may be noted in many countries. For example, possibilities for the construction of 5,000 small hydroelectric power plants with a capacity of under 1 MW are being tested in the Polish People's Republic. Approximately 800 MW with an average annual production of 367 million kWh have been installed in the Bulgarian People's Republic in plants with a capacity of up to 5 MW. In Sweden, 250 fully automated small hydroelectric power plants generating 400 million kWh/year are to be put into operation before 1982. In France, 978 such installations under 1 MW generated more than 1.4 billion kWh in 1977, and hydroelectric power plants with capacities as high as 50 kW are now under construction. Analogically, construction of small hydroelectric power plants with capacities from 25 kW to 1.5 MW at 15 to 50 m water gradient is now under consideration in Norway. The construction of hydroelectric power plants with capacities from 1 to 15 MW has become a part of amelioration programs in the USA; their total output will be 5,100 MW. The total output of hydroturbines that may be installed in the already built water reservoirs is estimated at 33,600 MW with the production of 159.3 billion kWh/year. A total of 600 MW installed in small hydroelectric power plants under 5 MW in the USSR generates 700 million kWh annually. The decision on reconstruction and modernization of hydroelectric power plants now in operation, issued by the 25th CPSU Congress, is now being prepared for implementation. Their capacity will be increased by 5,000 MW and their production by 6 billion kWh/year.

Only two small hydroelectric power plants with capacity under 2 MW have been built in the CSSR in the post-war period. As a rule, the construction of larger projects proceeded in harmony with the above-mentioned needs of the electrification system, with results presented in Tables 1 and 2.

According to a review of the possibilities for the construction of hydroelectric power plants, the remaining technologically exploitable hydroenergetic potential in the CSSR is estimated at 6.35 billion kWh/year, 1.68 billion kWh/year of which for the sites of small hydroelectric power plants. Table 3 presents those opportunities divided according to capacity groups of small hydroelectric power plants in volumes allocated for possible completion of their construction and for exploitation of energy in the already built water works, in newly constructed, or already planned large hydroelectric power plants, and in the volume of hydroelectric power plants to be constructed in water works that have thus far been only registered.

Table 3

Results of a Review of Possibilities for the Construction of Hydroelectric Power Plants in the CSSR (in million kWh/year)

| Item | CSSR | CSR | SSR |
|---|---|---|---|
| The remaining technically exploitable potential for water engineering | 6,355 | 1,818 | 4,537 |
| Of which hydroelectric power plants: | | | |
| -over 20 MW | 3,954 | 380 | 3,574 |
| -10-20 MW | 721 | 332 | 390 |
| -5-10 MW | 775 | 384 | 391 |
| -1-5 MW | 705 | 540 | 165 |
| -under 1 MW | 200 | 182 | 17 |
| Of which hydroelectric power plants: | | | |
| -in already constructed water works hitherto unexploited in water engineering | 214 | 201 | 13 |
| of which on the Elbe (weirs) | 190 | 190 | -- |
| -in the newly built and planned water works | 3,934 | 631 | 3,303 |
| of which | | | |
| -Vltava | 154 | 154 | — |
| -Elbe | 159 | 159 | — |
| -Morava | 115 | 115 | — |
| -Danube | 2,520 | — | 2,520 |
| -Vah | 744 | — | 744 |
| -In registered water works | 2,207 | 986 | 1,221 |
| of which: | | | |
| -Vltava | 240 | 240 | — |
| -Elbe | 199 | 199 | — |
| -Morava | 252 | 252 | — |
| -Vah | 504 | — | 504 |
| -Hron | 331 | — | 331 |
| -Bodrog and Hornad | 386 | — | 386 |

In the past, the reasons for a lack of interest in the exploitation of power in some water works under construction and in the construction of small-scale hydroelectric power plants stemmed from the method of thinking at that time, when all trust was unilaterally placed in the supply of power on the basis of development of large capacities of production. Social efficiency of small sources of energy was not assessed correctly enough. Even today, when the costs for comparable sources of power have increased several times, and we must import about 40 percent of the power we consume, potential investors in the Ministry of Fuels and Energy, industrial ministries or lower economic units are not sufficiently interested in the construction of small hydroelectric power plants. Finally, it is not even clear who should initiate the implementation of individual investment programs. Naturally, when deciding their construction, which is connected with relatively high investment outlays, it is unavoidable to make independent economic evaluations of each specific case. A comparison of estimated specific investment costs of comparable power plants fueled with coal and with nuclear power, and of other indicators significant for an economic evaluation of such sources under current conditions may be presented for an overall view of the economy of the construction of small and medium-scale hydroelectric power plants in the CSSR (Table 4).

Table 4

Orientational Comparison of Technological Economic Indicators of Czechoslovak Coal, Nuclear and Hydroelectric Power Plants

| Type of power plant | Investment costs Kcs/kW | Fuel costs hal/kWh | Specific consumption of power in percent | No. of workers person/MW |
|---|---|---|---|---|
| Brown-coal condensing | 4,300 - 6,000 | 12.5 | 8.0 | 2.5 |
| Nuclear with VVER 440 | 9,600 - 10,500 | 7.5 | 8.0 | 2.5 |
| Nuclear with VVER 1000 | 7,600 - 8,000 | 6.6 | 7.5 | 2.0 |
| Hydroelectric with accumulation | 5,000 - 8,000 | -- | 0.7 | 0.8 |
| Hydroelectric on an already built dam | from 7,200 | -- | 0.5 | 0.5 |
| Hydroelectric in a new dam | up to 16,400 | -- | 0.5 | 0.5 |
| Hydroelectric on a dam on navigation course | 10,000 - 14,300 | -- | 0.5 | 0.5 |

Economic advantages of hydroelectric power plants stem mainly from the fact that they are a primary source of fuel and power. Moreover, their higher investment costs replace the investment we would have to expend for the construction of coal mines or for the development of industries producing goods with which we pay for imported fuel and power. When assessing its contribution to power engineering for the fuel and power balance in the CSSR, each kWh generated in a small hydroelectric power plant must be multiplied at least by the coefficient of 1.15, because the specific consumption of electric power during its generation in hydroelectric power plants is more than 10 times lower than in coal and nuclear power plants. Furthermore, those plants are practically at the end of the distribution network and the transmission of the electric current to the consumer does not involve any major losses.

In our current experience the economic results of hydroelectric power plants in operation are considerably distorted by the inclusion of the so called rental fee for water works paid to enterprises of the water economy. Its amount is assessed mostly so that, in addition to the compensation for that part of investments in water works and streams that are related to the operation of the already constructed hydroelectric power plants, this rental is a source of funds to be used in other rivers or sectors of the water economy. If we wish to create an auspicious climate for further exploitation of our potential in the development of water power in the future, the amount of such rental fees must be objectively assessed.

By its decision No 304/79 the Presidium of the government of the CSSR approved the principles for intensive exploitation of the power engineering potential of water ways in the CSSR for the generation of electric power in small hydroelectric power plants, and outlined the tasks for their smooth implementation, maintenance, resumption of operations, and modernization. In addition, it assigned tasks in conjunction with the supplementary development of standard technology, including automatic equipment for selected hydroelectric power plants, and with the reevaluation of the conditions for compensation for the use of water works, so as to render the construction and operation of small hydroelectric power plants more lucrative.

## Opportunities for Exploitation of Geothermal Energy

Geothermal energy is another potential source of renewable power. A major part of the heat accumulated and developing deep in the earth by natural radioactive processes reaches the surface of the earth at a very low temperature and with thermal density of about 0.06 W/square meter. In locations with geothermal anomaly the density of the flow of geothermal energy reaches much higher values, up to 10 W/square meter, however, even this is not sufficient for direct exploitation. In comparison, the intensity of solar radiation reaching the earth is higher by approximately four orders of magnitude (about 1,000 W/square meter).

In certain locations, especially in volcanic areas with sources of hot water or steam, a part of the geothermal flow reaches the surface of the earth in an exploitable concentration. In many such cases the natural thermal source is artificially raised by means of drill holes reaching, in world practice, as much as 3,000 m in depth.

Irrespective of the fact that as concerns individual locations, the sources of geothermal water are considerably diffused, their exploitation for heating of industrial and residential buildings, and in agriculture, of greenhouses, in the dried-food industry, for animal and vegetable production is considered highly efficient because it requires fewer workers and transportation capacities, and does not pollute the environment with byproducts, such as is the case with the conventional sources of energy. Thus far, installed capacity of geothermal electric power plants represents only about 1,700 MW, but preparations for their construction have been considerably intensified. Their potential electric capacity is estimated at 100,000 MW.

Thermal power concentrated deep in the earth may be obtained in ways other than from the geothermal sources, since a much greater part of the attainable fraction of geothermal energy is contained in hot dry rocks in the earth's crust. The temperature of the rocks rises with the depth by about 30° C per 1 km. In geothermal anomalies the temperature gradient is much higher--several meters in depth are enough to elevate the temperature by 1° C. The amount of exploitable heat in hot dry rocks in the earth's crust depends on the depth from which the heat will be removed and on the temperature to which we shall cool down the rock. A technical solution for the exploitation of thermal power in dry rocks presupposes two holes drilled about 5,000 m in depth several scores of meters apart. Cold water, forced into one hole, removes the heat from the rock, and the water, heated up to 180 to 280° C, rises to the surface through the other hole and is then used to generate electric power or for other purposes. The service life of the holes is estimated at 5 years, after which other holes must be drilled.

Among the states that achieved the most outstanding success in the exploitation of geothermal energy are the U.S., USSR, Iceland, Hungary, Italy, and Japan. Geothermal power in Iceland, used to heat houses for several scores of years, is equivalent to roughly 300 thermal MW. A geothermal electric power plant of 2.5 MW has been operating in Iceland since 1969. About 200 drill holes are being exploited in 40 sites in the USSR, and 13 active volcanos in Kamchatka supply hot water for heating of houses and greenhouses, and in addition, a geothermal electric power plant with 5 MW capacity is operating there. Other geothermal electric power plants with a total capacity of 300 MW are planned for Petropavlovsk and for the Dagestan ASSR. Geothermal electric power plants with over 400 MW capacity are in operation in the U.S. Electric capacity of over 400 MW is installed in geothermal electric power plants in Italy; more than 300 drill holes yielding 300 tons of steam per hour are in operation near the town of Larderello. In Hungary geothermal power was exploited at a capacity equal to 1,500 thermal MW as early as in 1973, and in the future, rich sources of geothermal energy are to be exploited to an extent which may amount up to 50 percent of total power consumption. At present about 500 drill holes yielding water at approximately 7,000 l/sec and at temperature of 35 to 95° C are being exploited in Hungary. The U.N. Development Program has financed large geothermal projects in Turkey, El Salvador, Ethiopia, and Kenya, and subsidized additional 19 projects. Among the CEMA member countries, the Bulgarian People's Republic, the Romanian Socialist Republic, and the CSSR are following the USSR and the Hungarian People's Republic in planning more extensive exploitation of geothermal waters. In experimental testing of the exploitation of the geothermal energy of dry rocks the greatest advances have been made by the U.S., USSR, France, and the FRG.

Our country also has a potential for the exploitation of geothermal energy in the sources of geothermal waters as well as in the heat of dry rocks. The sources of geothermal waters are limited to low temperatures in the range of 40° C to 100° C. At the same time, they occur more rarely on the territory of the CSR than in the SSR. In the CSR we can count on expanded exploitation of the sources only in the known spa sites and with a limited number of other sites for health and recreational purposes. Thermal water sources in 17 areas established on the territory of the SSR are estimated at 7,434 l/sec with average temperature of 64° C and with a thermal capacity of 1,325 MW.

The capacity of drill holes exploited at present in Slovakia is approximately 200 l/sec with average temperature of the water equal to 70° C, and with capacity of 110 Gcal/hour. Hot water is supplied for power engineering in Piestany and Sklenne Teplice, and for greenhouse heating in Dunajska Streda, Calovo, and Topolniky.

The prospective outlook presumes that the sources of geothermal waters exploited in power engineering in the SSR will yield 760 thermal MW. This assumption takes into consideration potential losses due to an imbalance and seasonal consumption of heat, losses in exchangers, etc. In the next period exploitation of sources with temperatures of 80° C and with mineralization of 10 g/l, representing capacity of 582 thermal MW, is considered as most efficient.

The yield of the sources in the central depression of the Danube lowlands, which should be acquired on a priority basis, is estimated at 1,440 l/sec with a thermal capacity of 360 thermal MW, taking into consideration research, experience with their exploitation for agricultural purposes, and possible application of the experience gained in the Hungarian People's Republic. The area of the Ziar hollow, which may be the next in line, has sources with temperatures as high as 180° C and mineralization under 5 g/l, with a thermal capacity of 38 thermal MW; next are the sources in the Topolcianky bay, the neovulcanites in the northwestern part of Central Slovakia, in the Banov hollow, and in the Laksar-Sastin elevation, with temperatures of 80 to 90° C and total capacity of 208 thermal MW. The sequence in exploitation of sources in other areas with lower temperatures ranging from 40 to 60° C will be determined only after some experience with thermopumps and other technology has been gained.

Table 5

## Exploitable Sources of Thermal Waters in the SSR

| Area | Prospective reserves 1/s | Average temperature of reserves °C | Thermal capacity of prospective reserves MWt |
|---|---|---|---|
| SSR total | 7,436 | 64 | 1,520 |
| of which: | | | |
| Danube lowlands | 1,440 | 80 | 582 |
| Ziar hollow | 70 | 150 | 38 |
| Topolcianky bay | 270 | 90 | 75 |
| Central Slovakia vulcanites | 477 | 80 | 77 |
| Banov hollow | 127 | 80 | 28 |
| Laksar-Sastin elevation | 117 | 80 | 28 |

According to the data compiled by the working group of the Coordinating Commission of the government of the SSR for rational exploitation of hot subterranean waters, exploitation of 50 percent of thermal sources in the SSR will yield power representing Kcs 500 million annually, assuming that 25 percent of the energy obtained will be used to heat 53,000 housing units, including the supply of hot water for 175,000 residents in first class housing, and to supply heat for almost all spa buildings. Pursuant to the experience gained in the Hungarian People's Republic, and in accordance with the estimated operational outlays for the exploitation of energy from thermal sources for heating of buildings and of water for communal facilities will be 50 to 75 percent lower than in area heating systems based on conventional fuels. With costs determined in this manner the funds invested in one drill hole--Kcs 4 to 5 million--with an average capacity of 5 thermal MW will be repaid after 1.9 years of comprehensive exploitation. The outlays per unit of energy delivered for heating of greenhouses in agriculture will be 83.4 percent lower than for energy generated from liquid fuels. Thus, a geothermal hole drilled for agricultural purposes will pay for itself in 3.5 years.

It is estimated that in 20 years (by the year 2000) geothermal energy will contribute Kcs 5.8 billion, with investment and operational costs in the amount of Kcs 980 million. This estimate is based on the current know-how and on the situation in research and planning. The section concerning the sources includes only the low-risk cases and supplies of energy from individual sources in volumes corresponding to the natural hydrothermic renewability of the source. It does not include the contribution from extended recreation and from longer seasons in open swimming pools and sports facilities, which may significantly increase the total economic income.

In the CSSR thus far the heat of dry rocks has been tested for potential exploitation merely at the level of research studies. This source is considered for exploitation for generation of electric power, which agrees with concepts applied abroad. According to preliminary projections, with two holes drilled 5,000 m deep at the actual cost of Kcs 200 million, it will be possible to produce thermal energy for the operation of 10 MW electric power plants built for approximately Kcs 116 million. Under these assumptions the total costs of the program, including operation over 20 years, are estimated at Kcs 501 million. During the same period this source may generate as much electric power as can be generated from conventional sources for roughly Kcs 348 million, which means that in 20 years the whole program would be operating at a loss of about Kcs 153 million.

The exploitation of attainable geothermal energy of hot waters or dry rocks involves drilling operations. Seven of the 12 positive holes drilled in Slovakia in 1971-1978 went 1,900 to 2,500 m deep. According to conceptual considerations by the organs of the government of the SSR, the exploitation of all estimated sources of geothermal energy on the territory of Slovakia until the year 2000 will be regulated by a specialized organization with 320 employees, and 10 to 12 holes will be drilled every year. The estimated cost of one running meter of exploratory holes is Kcs 2,100 to depths under 1,500 m, and Kcs 3,700-8,400 to depths from 3,000 to 4,000 m. The problem, however, is where to obtain the necessary technological equipment. Most of the drilling equipment is imported and in short supply even for geological research of conventional fuels.

## Exploitation of Solar Energy

Deteriorating conditions with the acquisition of additional sources of energy stimulate the interest in direct or indirect exploitation of solar energy. In view of the fact that its total flux reaching the Earth (174,000 TW) is approximately 5 orders of magnitude higher than the current world supply of power (7 TW), its exploitation does not involve a problem of a primary source but rather questions of a technical, and above all, of an economic character.

The impinging solar radiation may be used to heat water, for residential heating, air-conditioning, and for low-temperature production technology in certain industrial and agricultural branches, or for direct transformation of heat to electric power by the photothermic method, with the use of areal and concentric thermal collectors. Thus far, the semiconductor modules, especially those with silica crystals, which are most common, generate very expensive electric power (50 to 100 times more expensive than that produced by conventional processes), and are used for special purposes only (satellites, polar areas, etc.).

Indirect exploitation of solar energy involves, in fact, secondary types of solar energy developing by various natural processes. Fossil fuels or water power represent in reality indirect forms of solar energy. This includes also prospective exploitation of thermal energy accumulated in rocks, underground waters, rivers, lakes, and air, by means of thermal pumps, and furthermore, exploitation of wind power, of thermal differences between the upper and lower layers of ocean and lake waters, tidal power and currents, utilization of photosynthesis (cultivation of fast-growing woods and plants for generation of power, bioconversion).

Under the conditions of our climate, average intensity of solar radiation amounts to 100 to 130 W/square meter per 24 hours and year, and in the days of peak sunshine, up to 1,000 W/square meter. Solar energy may be exploited in the CSSR to a relatively large extent already before 1990. According to processed data, this source of energy may contribute to the fuel and power balance in the CSSR by the year 2000 in an amount corresponding to 1 million tmp, which equals approximately 3 million tons of brown coal. Heating of water for household use, communal consumers, and installation of bivalent models of solar collectors are under consideration. It is presumed that electric power and heating gas will be used primarily as another supplemental source for additional heating of water (on sunless days when the required temperatures cannot be met).

Table 6 presents technical and economic results concerning heating of water by means of areal solar collectors in Czechoslovak conditions according to projections based on confirmed research.

Table 6

Annual Technical and Economic Contribution Per 1 Square Meter of Solar Collector

| Substituted Power | Estimated Savings<br>Technical unit | Kcs | Amortization of investments year |
|---|---|---|---|
| Electric power | 320 kWh | 390 | 4 |
| Heating oil | 92 kg | 220 | 7 |
| Natural gas | 120 cubic meters | 180 | 8.5 |

Exploitation of solar energy may be most effective in replacing electric power. Each 1 meter square of radiant heat surface on a solar collector built at the cost of approximately Kcs 1,500 saves 350 kWh, which amount of electric power may be generated in the above-mentioned electric power plant from 133 kg of specific fuel, or 400 kg of brown coal, which means that every 2.5 square meters of radiant heat surface of the solar collector save one ton of brown coal, which involves an investment of about Kcs 3,750.

The data on amortization of investments, presented in Table 6, proceed from calculations based on social costs; with the application of 1977 wholesale prices, the period of repayment will be expanded up to 15 years, and with the application of wholesale prices estimated for 1985, the period of repayment is 10 years. The period of repayment of investments expended indicates that it is important to achieve a sufficiently high level of technological dependability and viability of the equipment used in exploitation of solar energy. This problem involves considerable risks, because aside from the fact that many models of solar collectors are being tested worldwide as well as in our country, very little has been learned thus far about their long-range operation and maintenance requirements.

The decisive precondition for the approach to more extensive exploitation of solar energy in the above-mentioned areas is sufficient supply of the necessary technological equipment, not just of solar collectors, but also of other elements of bivalent systems: reservoirs, pumps, meters, and automation technology. Production of collectors, scheduled for development in the Strojsmalt and the CKD enterprises in Prague and in cooperative production, have been covering so far only 60 percent of the needs of potential users in agriculture, in the area of central ministries, in the economy under the control of national committees, and in the private sectors at the 1985 and 1990 levels.

Table 7

Projected Development of the Needs for, and Production of, Solar Collectors*
(square meters)

| Item | 1980 | 1985 | 1990 |
|---|---|---|---|
| Total need | 10,000 | 235,000 | 950,000 |
| of which agriculture | 7,000 | 200,000 | 676,000 |
| Total production | 11,000 | 140,000 | 600,000 |
| i.e., percent covered | 110.0 | 59.6 | 63.2 |

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*Based on the data of the Federal Ministry of Technological and Investment Development

As for covering the needs of electric power, heating oil, heating gases, and graded coal for heating of water for agricultural and other users, the situation in the future will demand faster progress in the production of reliable technology of bivalent systems for the exploitation of solar energy.

Exploitation of other nonfossil and nonnuclear domestic sources of energy, such as small hydroelectric power plants, geothermal hot water sources, and solar energy represents a contribution to our long-range fuel and energy balance in the range of 1 to 3 percent of the total capacity of the needed fuels and power, depending on how expeditiously we shall be able to develop such sources. Naturally, that does not imply that we should not consider them in the future. As stated above, the development and acquisition of such sources are not only connected with contribution of power, but also positively affect the environment, reduce the noxious effects of combustion of fossil fuels, expand the potential for recreation and balneologic treatment, sports, etc. Another important factor is the location of such sources, and their exploitation usually in the place of their consumption, without the need for transport and transmission of power.

The development of the above-mentioned sources concerns great many investors whose majority are active outside the Ministry of Fuels and Energy. Precisely for that reason, the central control sphere of our fuel and energy economy should be systematically involved in the creation of advantageous preconditions so as to stimulate the interest of the investors in the development of nontraditional sources of energy, to provide sufficient supplies of the required equipment, and also, to organize a legitimate system of economic incentives aimed at the exploitation of such sources.

9004
CSO: 2400

## IMPORTANCE OF BALANCE OF SUPPLY-CONSUMPTION STRESSED

Prague HOSPODARSKE NOVINY in Czech 11 Apr 80 p 3

[Article by Eng Ladislav Smid of the State Planning Commission: "Material Relations: Suppliers' Responsibility Increases"]

> [Text] A number of problems and shortcomings in material relations that have beeen frequently referred to lately indicate that growing complications in the reproduction process do not provoke adequate reaction from planning and management. A series of measures designed to improve the post-1980 planned management of the national economy responds to this situation, especially in the part outlining the tasks for ensuring thorough proportional planning at all levels of management, as a continuation of a program to improve the planned management of material relations, as directed by CSSR government resolution No 13/1978, which also stipulates that all the already adopted related measures must be adhered to.

The series of measures attaches much importance to developing a comprehensive system of valuational and material balances, which is to be the main instrument for ensuring proportionality in the plans. To achieve this purpose a qualitative change in the approach to understanding the balancing system is necessary, especially with regard to material balances.

Material balances so far have been considered mainly as a method used in operational production distribution of annual plans. The series of measures, however, stresses the role of material balances in detecting future needs justified by the national economy and thus also as an instrument for developing balanced products, structural changes, integration into the international distribution of work, internal specialization, production cooperation and creation of the production base. This substantially increases [the period of making use of] the role of balances in the five-year plan up to 2 or 3 years.

## Balancing System Stressed

Expert verification of demands for energy and material sources, semifinished and final products and an analysis of the possibilities for their rational satisfaction must be reflected in concrete measures to hold down consumption on the one hand, and on the other hand to choose a method to meet these needs, whether through better capacity-utilization rates or its expansion, [or] utilization of the international distribution of work, etc. These measures assume the allocation of appropriated funds and manpower. Only in this way will it be possible to avoid bottlenecks and shortages in meeting the needs, with all the consequences these entail. To this end, the industries central managements, economic production units and enterprises are directed to submit proposals for their five-year plans together with suggestions for precautions to be taken to avoid bottlenecks in meeting the needs, and estimates of funds required, as well as expected effectiveness of the propositions.

Conditions are being created to facilitate the preparation of the Seventh Five-Year Plan so that material balances can fulfill this purpose and thus contribute to achieving proportionality in the plan. The list of items to be balanced in the state plan has already increased during the first planning stage, and balancing and production distribution are now being introduced at the central organs, too. Thus, the list consists of some 340 items to be balanced in the state plan (compared with about 200 items in the Sixth Five-Year Plan), 120 items at central organs and 230 items at economic production units. This is approximately 60 to 70 percent of the industrial production in terms of volume, but not in terms of product mix, because balances often include various aggregated totals, the itemization of which requires additional deliberation by organizations and organs of consumers and suppliers.

The system of material balancing to be used in the Seventh Five-Year Plan also applies to some 19 types of investment units. Included are complete equipment units for power plants, thermal plants, coke ovens, rolling mills, forges, water purification plants, oil refineries, tire factories and cement works. Balancing used in investment units creates conditions for the better functioning of higher level supply organs mainly through planned assignment of tasks connected with domestic capital investment, program orientation with regard to supplies for export and supplies for completing semifinished products.

Principles of understanding and implementing material balances as an instrument of recognition and decision-making must not be limited only to levels determined at the top level. The responsibility of producers for meeting the needs as outlined in the series of measures requires implementation of these principles in the rest of the production also.

Consignment balances are closely connected with the national economy through valuational figures which determine the tasks of the individual links in the national economy, mainly through supplies of final products to capital investment, exports and domestic market. The series of measures stipulates that these balances must also determine sales for production consumption outside economic production units. This category represents more than 50 percent of the national product, its volume in the 1980 plan is Kcs 680 billion. Of this amount, 40 to 45 percent goes for fuel, energy, raw materials and other materials, and 55 to 60 percent for semifinished products, spare parts, etc.

While that 40-to-45 percent is to a large extent an item to be balanced at the central level, the second and larger part of the volume of production consumption is secured mostly through direct relations between consumers and suppliers. Determination of sales for production consumption will help in determining proportions of the final production campaign, and perhaps also in clarifying the structure of this category, for instance in sectoral lists.

In addition to material and consumption balances, it is also necessary to develop structural balancing of relations between planning groups and sectors, as well as to gradually introduce inter-product structural balances which would improve and replace the present system in isolated material balances and also harmonize material and valuational plan indicators. Efforts in this area are showing some results, but further elaboration and especially the integration of individual levels of planning is required.

Expansion of the system of material balances brings about expansion of the function of coordinating project managers. The series of measures maintains the present concept, i.e., coordinating project management will be enlarged whenever there is a need for the balancing activity of production sectors, or their parts, to be concentrated in one place, if at present this activity is performed by several economic production units and if the production concerned is balanced and allocated through the state plan by central organs or economic production units. This means that the authority of coordinating project managers continues to be limited by the balance and allocation plan approved by the proper organ. However, the coordinating project managers play an important role in preparation and realization of state economic plans, in relations between suppliers and consumers, including prevention of unplanned exports or imports, activities concerning research analyses, and actively influencing and verifying the needs as well as exercising controls of material balances and allocation plans.

At present there are 44 coordinating project managers for 263 products. The intention is to strengthen their function in every respect and to establish additional coordinating project managements where desirable.

There is no change in the concept of coordinating project managements for import consumption, but the purpose, i.e., more effective expenditure of foreign currencies and the motivation for their establishment is being emphasized. As far as imports from nonsocialist countries are concerned, the present procedure is to refer domestic consumers to the coordinating project manager for import consumption, as required by the regulations governing the foreign-currency direct consumers. The series of measures directs the Czechoslovak State Bank to cooperate with the State Planning Commission and the Ministry of Foreign Trade to completely harmonize the foreign currency regulations in this sphere, so that the purpose of establishing import coordinating project managements can be fully implemented.

## Coordination of Negotiating Procedures Necessary

The modifications in the system for the planned management of material relations--specifically, the amendment to announcement No 33/1975 of the Codebook of Laws--require that these changes be reflected in the procedures for negotiating and concluding supplier-customer relations during the planning process. The series of measures stipulates some of the areas where modifications are necessary, namely supplies for the development of science and technology, for capital construction and for imports of investment units. The measures stress the necessity for disagreements to be completely worked out and, to this end, they stipulate that the principle of concluding supplier-customer contracts crucial to an organ's or organization's plan fulfillment at the conclusion and specification stage must be gradually put into effect.

The amendment to the announcement contains provisions for the following principal adjustments:

--it establishes procedures valid also during the five-year plans;

--it increases the number of cases which must be considered for preferential allocation of supplies for state target programs;

--it combines production balance procedure with increased responsibility of the balancing organs and fund holders with regard to balancing the plan with appropriate material resources;

--it adjusts the existing procedure for resolving differences mainly by enlarging the group of cases which must be dealt with by economic organs;

--it regulates the system of coordinating project managements, as a part of the balancing system;

--it expands the group of cases under the planning act;

--it regulates procedures for dealing with relations, especially those which concern capital investment, domestic and foreign trade, services and supplies for the development of science and technology.

## Improvement in Stockpiles and Reserves Management

The series of measures directs the State Planning Commission to institute a mandatory procedure to be followed by organs of economic management to ensure utilization of unused reserves.

Management of reserves based on the principle of standardization, as well as some other questions connected with the development of the material and technological basis for the circulation of products, are already regulated by provisions of the CSSR government resolution No 15/1978. In 1978 the State Planning Commission issued directives for standardization of reserves. They especially call for harmony between reserve standards and the mandatory planned indicator for the development of reserves. Furthermore, they abandon the propaganda-oriented stepping-up of standards every 2 years and replace it by a gradual increasing, depending on the importance of each item, etc.

In January 1980 the CSSR government approved the jurisdiction for the Administration of Federal Material Reserves Reserves concerning development of warehousing. The aim is to influence the development so that it conforms with the original intention, i.e., to start constructing regional and public storage depots.

Solving procedural problems connected with liquidation of unused reserves should enable us to direct a considerable volume of the reserves back into the reproduction process. Their share of the total reserves is estimated at 5 to 10 percent. The problem is still being discussed by several institutions and a definite procedure has not yet been established. The basic method should be to report the unused reserves to organizations which sell the products in question to a large circle of customers. At the same time it is anticipated that the question of linking up the CSSR with international exchange operated within the framework of the CEMA Committee for cooperation in material-technological supplies will also be resolved.

The question of the management and distribution of reserves is subject to a regulation which directs the industries' central organs to improve the quality of management in marketing, supplies as well as organization of these activities, as a part of overall management improvement. Although this obligation has already been imposed by CSSR government resolution No 15/1978, no substantial progress has as yet been noted. The fact remains, however, that proper distribution of reserves, building up of a suitable assortment of user supplies can effectively facilitate availability of supplies and shorten the ordering and delivery periods. This requirement is also stipulated in the series of measures. Proper centralization of user and supplier activities, especially between general directorates of economic production units and subordinated organizations, may contribute to the simplification of supplier-consumer relations and procedures, it can promote better management of material resources, reduction of reserves, rationalization in marketing methods, etc.

Better attention should also be paid to the functioning of user organizations. Numerous complaints in this field indicate that these organizations are not adequately performing their work of smoothly supplying a large group of customers with suitably assorted products. Most of the user organizations are supervised by organs at the intermediate level of management which also are required to contribute to the improvement of the present situation.

## Emphasizing Long Term Contracts

Important development is expected in the contracting system. Its function must be reflected in realization of the planned proportions. Most of the provisions contained in the series of measures which apply in this field need to be incorporated in the legal code. Thus, for instance, in connection with the formulated status of the five-year plan, the importance of long term contracts is enhanced, especially contracts of a preparatory character. There will be a growing number of cases where concluding long term contracts will become mandatory in connection with planning decisions valid for the duration of the five-year plan, or for the period of a planned goal. These contracts may be concluded by organizations as well as by organs of economic management. Their binding character in assigning tasks, preparation and allocation of tasks emanating from execution plans is an important instrument for promoting stability in supplier-consumer relations, especially in capital investment, supply of semifinished products, etc.

Emphasis is on supporting execution plans with contracts so that supply organizations could conclude all their contracts, except valid exemptions, within a short period after expiration of the delivery terms at the end of the quarter. Connected with this is also an ambitious task of sectional central organs to shorten order periods so that they would take only the technically unavoidable time for preparation, production and delivery.

Strengthening of contractual discipline is also a prerequisite for implementing the system of assessing organizations according to how they conclude and fulfill their contracts.

Better functioning of the supplier-consumer relations system can also be facilitated by introducing material penalities as punishment for breaking contractual obligations and for anti-social behavior.

A number of other provisions contained in the adopted document can also influence improvement in material relations. Measures adopted to improve one's own system of material relations must not be taken as merely a modification of regulations or instructions but, above all, as instructions for interpreting the responsibility for meeting the needs of the national economy. Expansion of balances or adjustment of juridical regulations will not alone prevent bottlenecks or distribute supplies more rationally. It is necessary to remove differences in the behavior of suppliers' and consumers' organizations, and to introduce better cooperation between related organizations to achieve a smooth and effective reproduction process.

9454
CSO: 2400

## ONLY 28 PERCENT OF APPLICANTS FOR HARD CURRENCY SATISFIED THIS YEAR

AU141408 Bratislava SMENA in Slovak 13 May 80 p 5

[Report signed by "JT": "What Personal Allowance for Travel"]

[Excerpts] About 212,000 of our citizens have applied for foreign currency allocations for private travel to nonsocialist countries. This is about 12 percent more than last year. According to data issued by the Czechoslovak State Bank people asked for U.S.$45.3 million for these travels and, as regards Yugoslavia, for 477 million dinars. Compared with last year the increase amounts to 22.9 percent and 12.7 percent respectively.

Even though in both national republics more foreign currency has been earmarked for those purposes than last year, not all applicants could be satisfied. Priority has been given to those who have not yet traveled to those countries [nonsocialist countries and Yugoslavia]. These constituted 69 percent of all applicants but even so not all of them could be satisfied. A total of 28 percent of applications for travel to nonsocialist countries and 63.2 percent of applications for travel to Yugoslavia have been satisfied this year.

Participants in organized tours arranged by travel agencies, including enterprise recreational sojourns and tours within the framework of the revolutionary trade union movement's recreational care with accommodation and full board can claim the following personal allowances per person and day this year: for Bulgaria up to 10 leva, for Hungary up to 100 forints, for the GDR up to M18, for Poland up to Z197, for Romania up to 83 lei and for the USSR up to R6.70. When the accommodation, breakfast and only one principal meal has been arranged the allocations are being raised by one third; the personal allowance for children up to 15 years of age is not being cut but is the same as for adults.

The maximum allocation for trips to Hungary up to the middle of June is 300 forint per person for the entire stay, after that--during the [main tourist] season--individual tourists may claim 250 forints per person and day. No special allocation of forints is being granted to motorists crossing Hungary when traveling to another country; however, during transit they have the opportunity to exchange Kcs300 worth of forints.

During the 1980 Olympic games in Moscow no exchanges of the socialist states' national currencies within the framework of the so-called 30 ruble-agreement--that means an additional exchange of up to Kcs300--will be made on the territory of the USSR. Czechoslovak citizens traveling to the USSR between 15 June and 2 August may exchange up to Kcs300 for rubles per person in excess of the set currency allocation before departure in the Czechoslovak foreign currency banks or authorized non-bank exchange offices.

CSO: 2400

## PLANTS COMPLAIN ABOUT PROBLEMS IN 'SET OF MEASURES'

AU211353 Bratislava PRAVDA in Slovak 17 May 80 pp 1, 2

[Report by Jan Markovic: "A Clear Goal--Most Efficient Work; First Specific Introduction of the Workers of the Kosice Heavy Engineering Works to the Set of Measures"]

[Excerpts] This week communists in many a CPSL basic organization are acquainting themselves with details of the set of measures designed to improve the planned management system of our national economy. It also constitutes the main point on the agenda of the manymembership meetings of the CPSL enterprise organization at the heavy engineering plant, plant of the Soviet Army, in Kosice.

There are many questions and not all of them can be immediately answered because an elaboration [of the set of measures] and methodological instructions from the sectoral ministries are still lacking. This Wednesday for instance Eng Jozef Matta, the enterprise deputy director for economic affairs, had to admit at a session of the CPSL enterprise organization No 1 in the special production plant, that for the time being he is still unable to give a specific answer to many questions. The communists' healthy curiosity is gratifying. They want to know as much as they can about the implementation of the set of measures, and all employees in general would like to find out about such specifics as how overtime work will be handled, what will be their stake in the plan fulfillment of those employed in the preproduction stage or in the overfulfillment of export tasks and other questions. Often they offer suggestions and observations. One can sense from many contributions to the discussion that the questions are not completely unfamiliar to the people--after all, within the framework of its industrial production unit, the Kosice heavy engineering plant has been testing some elements of the set of measures in an experiment. Several of the proposed suggestions are remarkable. They suggest, for instance, that within the framework of the industrial production unit, long-term rules governing the monetary incentives for the overfulfillment of the planned export volume should be introduced; rules which include foreign exchange incentives. They believe that it is inadmissible to change the conditions of monetary incentives for increasing exports in the course of the year, as has been the case until now. They demand a stricter differentiation of wages on the basis of the value added index. There were also questions about the economic incentives for workshop's collectives if the workshop fulfills the plan with a lower number of employees than planned.

At this stage of preparations for the application of the set of measures it is, indeed, still problematic to give clear answers. As regards, for instance, the question about monetary incentives for the fulfillment of a job with a lower number of employees than planned, one cannot but voice the conviction that it is the purpose of the set of measures to make economic use of the labor force. It must be assumed, therefore, that economic benefits will actually ensue from such savings in manpower, the economic deputy director Eng J. Matta explained.

The management of the enterprise, the all-enterprise CPSL Committee and the trade and youth union organizations in the Kosice heavy engineering works realize that the substance of the changes that are being prepared consists in the notably enhanced role of the quality indexes because these indexes reflect the efficiency, quality, and conservation standards of production but also labor productivity and the extent of the use of energy, raw materials and long term assets. They are creating, therefore, within the scope of the current possibilities the best possible conditions for coming as near to these indexes as possible already in the coming weeks and months.

"It would be very desirable if we were not left along in this endeavor but receiving from our ministry, as early as possible, instructions concerning the implementation of the set of measures, instructions that would clarify the still hazy problems. That would be all the more urgent because we are now preparing the plan for 1981; knowing only the general principles we can easily make an error," Eng P. Gesvantner, enterprise director of the heavy engineering works in Kosice complained. It must be added that this problem is raised not only by the heavy engineering works in Kosice but also by other Czechoslovak plants and enterprises because the successful start of the first year of the Seventh Five-Year Plan will, to a considerable degree, depend on those implementation instructions. It must be said frankly that there is concern that the situation, familiar from some measures and changes in the past, might be repeated when the instructions concerning their implementation were issued by the ministries frequently only a year after the introduction of the new economic incentives so that in many plants and enterprises they had to interpret and apply them haphazardly in practice.

CSO: 2400

## DANUBE RIVER CONSTRUCTION PROGRESS NOTED

Prague SVET HOSPODARSTVI in Czech 3 Apr 80 p 2

[Article by -jz-: "Progress in Construction of Waterworks on the Danube"]

[Text] On the system of waterworks in the Gabcikovo-Nagymaros section of the Danube, the participating organizations will carry out construction work valued at Kcs 585 million this year which is almost twice as much as last year. At the same time, hotel-type accommodations for workers are being constructed whose cost will amount to an additional Kcs 105 million. Hydrostav national enterprise Bratislava is the general contractor for major parts of both projects.

The Hydrostav employees are working now on the protection of the specially-designed foundation pit for the Gabcikovo hydroelectric power plant. The complex geological conditions necessitate using technologies which are unusual in our construction work. Part of this work is carried out by Vahostav national enterprise which is also working at the same time on relocating the levees along the line of the water supply canal and on the retaining walls of the foundation pit for culverts under the water supply canal at the fourth kilometer. The 17-km water supply canal will bring water to the Gabcikovo section at the rate of 4,200 cubic meters per second. The dikes will reach the height of as much as 13 meters above the ground. The width of the canal varies from 270 to 730 meters and the depth from 7 to 14.5 meters. Work proceeds also on the excavation of intersecting canals which will drain water filtered through on both sides and by means of pumps will regulate the water table so important to agriculture.

But problems have also been encountered, even on this priority construction project. The reason for the relatively considerable delay was the high water level at the beginning of the year, which postponed work on relocating the dikes, and also the breakdowns of construction machinery, particularly excavators, and of special equipment used for constructing underground walls.

Despite these difficulties, realistic prospects exist for fulfilling and even surpassing this year's plan. The USSR has delivered the bucket excavator Dniepr ahead of time which will be put into operation by the end of April.

Moreover, two Czechoslovak-made bucket excavators of the Babice type will be delivered to the construction site this year.

To fulfill this year's tasks, 17 participating enterprises and organizations have signed a joint socialist pledge. Another joint socialist pledge will insure assembly and an international joint socialist pledge signed by the investor and design organizations in the CSSR and Hungary will provide for the delivery of design documentation on time.

10501
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CZECHOSLOVAKIA

# EXPERIENCE FROM COMPREHENSIVE EXPERIMENT RECOUNTED

Prague SVET HOSPODARSTVI in Slovak 3 Apr 80 pp 1-2

[Article by Eng Stefan Cachan, State Office of Statistics: "Knowledge Gained from the Comprehensive Experiment"]

> [Text] The successful fulfillment of the plan and the development of industry in the SSR last year was made possible in part by those enterprises that verify the comprehensive experiment in efficiency and quality control. Although how their results look in comparison to others' was influenced by which organizations were selected and their structure, they are achieving higher rates of growth in labor productivity, reduction of production costs, profits and profitability. At the same time, their labor force increased more slowly than in industry as a whole. The experiment stimulated workers' interest and increased their material self-interest in higher product quality and innovation.

The comprehensive experiment in efficiency and quality control has been verified since 1 January 1978 in three Slovak VHJ's [economic production units] which in 1979 accounted for 45 percent of commodity production and 37.7 percent of the total labor force employed in the organizations supervised by the SSR government. Other enterprises included in the experiment and managed by the statewide VHJ's accounted for an additional 5.9 percent of the total commodity production and 7.1 percent of the total labor force in the organizations supervised by the federal ministries. The experiment has so far been introduced in 58 industrial production enterprises accounting for 28 percent of commodity production, 29.9 percent--at wholesale prices--of deliveries for export to the socialist countries, 36.5 percent--again at wholesale prices--of shipments for export to capitalist countries and 34.8 percent of the profit of centrally managed industry of the SSR.

This summary alone is enough to reveal that these are primarily organizations with higher export competitiveness and higher efficiency. The results achieved by the experimenting VHJ's in the production of material resources [and] their use, in efficiency and quality were more favorable than in other organizations during the last 2 years and generally correspond to the goals of the experiment.

The experimenting VHJ's achieved generally good results in their creation of added value, in reducing production, primarily material, costs, and thus also in increasing profit and profitability in relation to the production funds. The fulfillment of the 1979 targets, however, was also affected by changes in the original plan. Profitability in relation to the production funds and profitability in relation to costs in the experimenting VHJ's were higher than stipulated by the plan and higher than in the previous year. The profitability targets set for production funds were met not only because the planned profit margins were surpassed, but also because the production funds did not reach the planned level. In comparison with the previous year, all experimenting VHJ's achieved savings by reducing the total cost per Kcs of output, not taking into account the effect of foreign trade. They failed, however, to fulfill the revised plan of total costs.

The reduction of material costs in the experimenting VHJ was the main factor in the increase in profit which, though it increased by 16 percent, fell less than one percent short of the plan target. Better management of raw and industrial materials affected the development of added value, which increased by 3.5 points more than gross production. With the exception of VHJ Ogako, inventory turnover was more rapid than anticipated by the plan and also than it was last year. Despite the relatively balanced fulfillment of the plan of returns on fixed assets, the problem of their utilization is the same as in industry as a whole. In the last 2 years, the shifts worked per worker per day declined from 1.402 to 1.323 in VHJ Ogako and from 1.484 to 1.476 in the chemical industry, but increased from 1.401 to 1.417 in the woodworking industry and from 1.672 to 1.677 in the rubber industry.

The conceptual approach to the uniform system of quality control was the principal factor in achieving some positive results in quality. The percentage of products examined by the state testing centers out of the total volume of goods produced by all experimenting VHJs increased and amounted to 40 percent in the chemical industry, 20 percent in the woodworking industry and 6.25 percent in the leather and shoe industry. The planned percentage of products included in the first quality grade out of the total production volume was surpassed by 3.5 points and reached 10.9 percent in VHJ Slovchemia; the respective figures were 3.3 points and 4.3 percent for VHJ Lumber and Furniture Industry, while the respective ratio increased from the planned 0.3 percent to 1.2 percent in VHJ Ogako. The planned percentage of these products of the total production volume was surpassed in Slovchemia and Lumber and Furniture Industry, while it remained essentially at the existing level in Ogako.

In comparison with the preceding year, the situation was unsatisfactory in regard to the cost of replacing defective products, which increased by Kcs 8 million to Kcs 36 million. The increase fully applied to VHJ Ogako, while this indicator remained at the 1978 level in the other two VHJ's. Only VHJ Ogako made full use of higher prices of products included in the first quality grade and fashionable products, and earned an extra Kcs 61 million for this reason, while Lumber and Furniture Industry gained only Kcs 5 million and Slovchemia Kcs 2 million. The lower prices have still failed to fully reflect the specific weight of products included in third quality grade as is clear from the fact that their value was less than Kcs 3 million in Slovchemia, half a million Kcs in Lumber and Furniture Industry and Kcs 1 million in VHJ Ogako.

With the exception of shipments for export to the socialist states, the experimenting VHJ achieved better results in production utilization than the nonexperimenting enterprises and industrial production as a whole in 1979. They fulfilled the plan of sales of finished products by 100.1 percent, while surpassing the previous year's figure by 3.7 percent at the same time. They did not fulfill the plan of deliveries to the domestic market, however, because of the lower production volume in VHJ Slovchemia and Ogako. This was primarily due to the economy measures enacted in regard to gasoline for cars and insufficient materials supply to shoe production.

Only VHJ Lumber and Furniture Industry met targets for exports to the socialist states. VHJ Lumber and Furniture Industry Zilina and Ogako failed to meet the targets set for exports to the nonsocialist states. The effectiveness targets set for exports to the socialist as well as nonsocialist states were met because the planned differential indicator [profit margin] of deliveries to the socialist and nonsocialist states (at wholesale prices f.o.b. state border) was substantially surpassed.

The good results achieved in the fulfillment of the plan of added value and profitability in relation to the production funds, as the basis for calculation of wage funds, meant that the wage limits did not have to be applied. VHJ Slovchemia failed to increase its labor force according to the plan and this, together with the favorable production of wage funds, resulted in surpassing the specified average earnings. As a result, the experimenting VHJ's gained Kcs 72 million--above the specified limit--for the incentive component of wage funds last year.

The increase in labor productivity of added value was more rapid than labor productivity of gross production. This resulted, with the exception of VHJ Slovchemia, in the more favorable situation with respect to the increase in average earnings. Neither the replenishment of the fund of material incentives based on the share in economic results achieved in exports nor the plan fulfillment corresponded to the results actually achieved in shipments for export. Of the total reserve fund amounting to Kcs 73 million, Slovchemia used 29 percent, Lumber and Furniture Industry 96 percent and Ogako 39 percent for various payments and for overcoming the time gap between the replenishment and use of the development fund. The good results achieved in profitability with respect to production funds were the main reason the planned generation of the development fund was surpassed. On the other hand, the nonfulfillment of the plan of shipments to the domestic market and for export virtually did not affect the size of the development fund.

The application of the system of indicators, which more objectively reflect the need and enterprises' actual contribution to the results, furnished definitely favorable experience: workers' participation in management increased; the principles for developing work initiative focusing on the qualitative aspects of the production process were defined with more precision. The system of those indicators that more faithfully reflect efficiency and quality requirements and compliance with them has gradually necessitated a revised approach to the fulfillment of tasks. It created effective pressure on and interest in increasing production efficiency and quality.

The years' experience in verifying the new management tools points to the importance of stability and balance in the medium-range plan. None of the experimenting VHJ's has so far accomplished this. In addition to the positive effect on workers' thinking it produced, the comprehensive experiment in efficiency and quality control has furnished information which, together with the experiences of the Soviet Union and other socialist states, was incorporated in the set of measures designed to improve the system of planned management of the national economy after 1980.

10501
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## SLOVAK MINISTER CITES PROBLEMS IN AGRICULTURE, FOOD INDUSTRY

Bratislava ROLNICKE NOVINY in Slovak 17 Apr 80 pp 1, 3

[Excerpt from the speech of Eng Jan Janovic, SSR Minister of Agriculture and Food, at the meeting of the Slovak National Council: "With Greater Responsibility"]

> [Text] The following is an excerpt from the SSR government report on the implementation of a resolution approved at the 13th session of the CPCZ Central Committee and the related session of the CPSL Central Committee on the present status and directions for the future development of SSR agriculture and food industry which was read by SSR Minister of Agriculture and Food Industry Eng Jan Janovic at the 15th meeting of the Slovak National Council.

At the beginning of his speech to the Slovak National Council, Eng Janovic stated that he was authorized by the SSR government to inform the Slovak National Council of some current problems in our agriculture and food industry, of the tasks and intentions concerning food supply to the population as well as of the way in which these objectives could be attained by the gradual solution of existing problems.

The resolution of the 15th CPCZ Congress and the measures taken by our supreme party and state organs were consistently aimed, even under more difficult foreign trade conditions, at the constant improvement of food supply to the population. Due to the effort of the party organs, SSR government, SSR Ministry of Agriculture and Food, kraj and okres organs, workers in agriculture and food enterprises, the targets of the Sixth Five-Year Plan were surpassed in the food supply to the domestic market during the first 4 years of the current five-year plan. The agricultural and food sector supplied the retail trade network in Slovakia with 31,400 tons of meat and meat products and 17,300 tons of poultry more last year than in 1975. This means that the SSR consumer could on the average buy 7.9 kilograms of meat and poultry more last year than in 1975.

During the last 4 years, deliveries of eggs increased by 112 million, milk by 79 million liters, butter by 3,500 tons, cheeses by 4,000 tons. These deliveries made it possible not only to meet the needs of the increasing population, but also to significantly increase consumption per capita.

## Thorough Analysis of Past Development

Our supreme party and state organs thoroughly analyzed the past development of agriculture and formulated the basic directions of further growth in the agricultural and food sector during the next period. Obligatory measures were adopted which aim at the most successful completion possible of the Sixth Five-Year Plan and creation of prerequisites for its further development in the next period.

Just as in the previous years of the Sixth Five-Year Plan, the development of agricultural production was rather complex last year and production and effectiveness of growth factors varied in individual sectors and years.

It is not easy to evaluate the development of agricultural production last year or throughout the Sixth Five-Year Plan generally, nor to separate the effect of external influences from the domestic ones, the effect of objective circumstances from the subjective factors.

The general conditions under which we must promote further development of agricultural and food production are even harder than in the previous years. We must therefore approach the 1980 tasks from these more demanding positions and adopt and carry out measures which will help us accomplish these tasks in the best possible way.

The attention of management organs is focused on crop production. The results achieved during this five-year plan were considerably affected by the unfavorable weather conditions in 1976 and 1979.

The most important consequence of the low growth rate in crop production is the fact that the necessary balance was not attained between crop and livestock production--a task which was so resolutely set by the 15th CPCZ Congress.

In the effort to keep the domestic market properly supplied with meat, poultry, milk and eggs, the nonfulfillment of the plan in crop production necessitated emergency imports of grains for fodder from nonsocialist states in order to replenish the central fodder fund.

Despite the losses in 1976 and 1979, crop production was up 5.3 percent from the first 4 years of the Fifth Five-Year Plan. There was a 11.9 percent increase in livestock production so that the overall agricultural production increase amounted to 9 percent.

The results were affected by the adverse weather conditions. The nonfulfillment of tasks in crop production, however, was also partly caused by the subjective factor both within agriculture itself and in the area of its suppliers. We are now conducting a thorough analysis of our own internal subjective shortcomings.

## By Joint Effort

We especially aim at rendering management in enterprises and supervisory organs more effective and at achieving better coordination between the enterprises engaged in primary production, services and processing. We are aware that this is the principal road to the reduction of losses in harvesting, post-harvest handling and storage, to the higher quality of products and to the mobilization of reserves in the lagging enterprises. We know also, however, that making more effective use of the subjective factor is one of the most complex tasks with which we must cope in the interest of development of socialist agriculture today. We can take a step forward only by the joint coordinated effort of all.

Under these more difficult conditions, we at the SSR Ministry of Agriculture and Food realize more fully than before the complex nature of mobilization of the subjective factor, namely man, and are striving to find more efficient methods for rendering this factor more effective.

Apart from our internal subjective shortcomings, there were also by no means insignificant external factors. In the last 30 years, agriculture released more than half a million people from its labor force. This was correct. It made possible the immense industrialization of Slovakia. It was less correct, however, that the rate of mechanization and application of chemicals in agriculture was not sufficient to make up for the labor force decrease. The substitution for human labor was inadequate particularly in regard to special products such as vegetables, fruit, most of the so-called industrial products, potatoes, legumes, grapes. This has been reflected in lack of appropriate equipment for harvesting of fodder, particularly on slopes, as well as in shortages of materials-handling and transportation equipment and of chemicals used in agriculture.

## Utilization of Land Is Most Important

In increasing production according to the plan, we regard the more effective utilization, protection and fertilization of land as the foremost task. The SSR government pays systematic attention to the problems of land. During the last 2 years alone, it dealt 9 times with land-related problems and checked the implementation of adopted measures. Some positive results have been achieved. Although the rate at which land is being taken out of agricultural production is declining, we still do not handle the land in the way designated by the regulations of the Slovak National Council.

Pressures continue to be exerted in many locations to take the best land, as for example for housing construction in Trnava, Prievidza and other places. We ask the national committees to speed up the rationalization of model territorial plans of towns and smaller communitites in order to reduce the demands for taking fertile lands out of agricultural production. Measures are being prepared that will favor construction in inferior terrains. At the same time, we are trying to complete rapidly the classification of land on the basis of physical inventories and to put their records in order. This is an important prerequisite for the improvement of planning and for better utilization of land.

We attach great importance to the endeavor to turn over all land which is not suitable for large-scale operations to the organizations of the Union of Backyard Farmers which will represent a considerable contribution to fruit and vegetable production and enrichment of the local markets.

The land improvement plan is being implemented satisfactorily. In the last 4 years, that is by the end of 1979, more than 70,000 hectares of land had been reclaimed and 36,000 hectares of land had been irrigated. During this year alone, almost 16,000 hectares of land will be reclaimed and 10,679 hectares of land will be irrigated. In accordance with the resolution of the 13th session of the CPCZ Central Committee, 120,000 hectares of land will be irrigated and 90,000 hectares reclaimed during the Seventh Five-Year Plan. This will require big investment funds, irrigation equipment, considerable sources of power supply, large quantities of pipes and water supply.

An important means for increasing the production capacity of land are the noninvestment inputs for recultivation of land. Although 390,000 hectares were recultivated during the first 4 years of this five-year plan--this is 50,000 hectares more than in the Fifth Five-Year Plan--we are still not satisfied and want to do much more.

The inventory of land has revealed that we still have approximately 76,000 hectares of land ineffectively used, particularly in Central Slovakia kraj, which requires most essential recultivation. However, there is in fact much more land which is not yet utilized. The inventory did not include the areas adjacent to plowed land, the areas occupied by the piles of hay, multilane field roads, old dung-hills in the fields and so on. These areas represent many thousands of hectares.

## Emphasis on Fodder

In crop production, the focal task lies in supplying fodder for livestock production and grains production. The 1980 plan calls for a 5-percent grain production increase over and above the record breaking harvests in the past.

In production of roughage, the emphasis is on the sufficient supply of high quality hay and silage and hayage. There still are big losses in harvesting. Many enterprises still do not observe technological discipline in conserving fodder and in the use of conservation agents. A problem whose solution is beyond agricultural workers' power is the shortage of equipment for harvesting sloping areas. Moreover, we do not have enough hay-barns, suitable hay and silage pits.

The targets for industrial crops, sugar beet, potatoes, oil plants and legumes are demanding. These are the products that substantially reduce our import requirements. The problems are concentrated in the area of the protection against weeds and pests. Their incidence borders on the calamitous in many instances. We emphatically demand the application of the classic method of fighting weeds, or more correctly, crop rotation and machine and hand weeding. The reduced agricultural labor force has already created and will continue to exert pressure for pesticides to be employed. Our chemical industry, however, has not reacted to this development adequately and in time. The assortment of chemicals available to agriculture is actually smaller than 10 years ago. We obtain more than 50 percent of our pesticides from capitalist countries, where our purchase possibilites are rather limited. The situation is very serious. There have been considerable delays in the implementation of the AGRO III program which was assigned priority by the 13th session of the CPCZ Central Committee. It is absolutely imperative to implement this resolution of the CPCZ Central Committee to the letter and to begin the construction of additional production capacities during the Seventh Five-Year Plan.

We expect the centers of the Slovak Academy of Sciences to help elaborate the methods of biological struggle against pests because the application of chemicals has its limits also in this area.

Problems with Vitamins

In the last 2-3 years, the demands on fruit and vegetable supply to the population increased, due among other things to the diminishing possibilities of importing them from the CEMA countries. The frequently criticized shortages result both from varying crops of particular products in individual years (this should be regarded as a permanent phenomenon) and from the fact that the agricultural and trade organizations and organs have still not found the best possible method of purchase, storage and distribution. Construction work has already begun on 10-hectare hot-houses near the compression stations on the natural gas pipeline and additional ones will be constructed during the Seventh Five-Year Plan. A smaller number of hot-houses will also be constructed close to the hot springs. The situation in vegetable production has been considerably improved by the foliovniks [plastic mulch?] which, primarily due to their production at Plastika Nitra, already cover an area of 400 hectares. We plan to construct centers for postharvest treatment, with adequate handling and storage facilities worth Kcs 200 million during the Seventh Five-Year Plan. We anticipate deliveries of equipment worth Kcs 160 million to the vegetable sector and Ksc 60 million to the fruit sector. The SSR Ministry of Trade, the Slovak Union of Consumer Cooperatives and the SSR Ministry of Agriculture and Food are working on measures to improve the purchase, storage, postharvest treatment, retail packaging and distribution of vegetables and fruit in accordance with the long-term plan approved by the CSSR government and implementing measures enacted by the SSR government.

Serious problems are encountered in fruit production, two-thirds of which comes from small growers. Of 21,600 hectares of orchards, only 3,000 hectares are intensively cultivated. Moreover, orchards are dispersed and in unsuitable locations. Only 2,200 hectares of orchards are irrigated. The biggest defect is that the yields per hectare have not yet been stabilized. This has been caused by a number of consecutive years with unfavorable weather, but also by the shortcomings in agroengineering, protection and particularly harvesting of crops. Harvesting of cherries and apples for direct consumption constitutes perhaps the biggest problem and shortcoming of fruit growing.

## Reserves in Livestock Production

Livestock production continued its generally favorable trend during the Sixth Five-Year Plan, although the dynamics of growth was uneven. The specified targets were met and surpassed in production and purchase of slaughter poultry and eggs. Despite increased attention to cattle breeding, there still are quite a few inefficient enterprises in all production areas. The still inadequate supply of high-grade roughage constitutes a limiting factor in this branch. The fulfillment of this task has therefore been assigned priority both in the plan and material incentives. Good experiences of outstanding enterprises particularly in West Slovakia kraj with production of their own fodder and overall organization of cattle breeding will be more actively utilized in all enterprises mainly in East Slovakia and Central Slovakia krajs.

That considerable reserves exist in this area is clear for example from the fact that Michalovce okres managed to increase milk capacity per cow by 283 liters and Kosice okres by 232 liters last year. Even Dunajska Streda okres, where milk production per cow is already high, managed to increase it by 212 liters last year.

Our weakest spot in the reproduction of beef cattle is the breeding of heifers and this has an unfavorable impact on the economics of cattle breeding generally. The improvement of reproduction, that is of natality and raising of calves and heifers--although their financial effect is felt only later on--is decisive already today for the dynamic increase in cattle breeding which is anticipated for the Seventh Five-Year Plan.

Another serious problem is the continued stagnation in the feeding-up of beef cattle and their relatively low weight at the time of slaughter. We anticipate a substantial improvement during the Seventh Five-Year Plan resulting from the increased use of high-quality roughage and baled fodders. It must be regarded as realistic to attain 80-100 decigram daily gains for beef cattle and a 10-20 kilogram increase in weight at the time of slaughter. The program of improving the high utility type of beef cattle during the period of the Seventh Five-Year Plan, which is based on good experiences made during this five-year plan, has already been prepared and will be submitted to the government. The breeding program will include two basic utility types of beef cattle with emphasis on increased production of both milk and meat. One-third of the cattle population will be bred for milk purposes, and the remaining two-thirds will consist of dual-purpose cattle. We also intend to breed special stock primarily for meat.

By making effective use of new economic tools we focus attention on further specialization in cattle breeding and potential transfers of beef cattle within the okreses and also between the okreses and krajs.

We also anticipate potential transfers of young breeding and utility cattle from the CSR, and will import top quality breeds from abroad for breeding purposes.

Full Utilization of Genetic Fund

While general priority has been assigned to beef, the emphasis in pork production will be on the qualitative aspect. Starting this year we are creating the feeding conditions for fully utilizing the genetic fund of highly efficient hybrids of hogs. The percentage of protein components in fodder compounds is gradually increased. Approximately 30 big breeding farms are intensified in the course of the Seventh Five-Year Plan. An immediate and even more serious task, however, is the reduction of grain consumption in feeding of hogs, particularly in the lagging enterprises.

The progress achieved in breeding and hybrization of hogs can also be considered favorable. The proportion of meat in slaughter halves increased by one percent. We have succeeded in developing a new breed with white meat and better production and use parameters.

In accordance with consumer demands, production of turkey-hens, geese and ducks will increase. The SSR Ministry of Agriculture and Food and SSR Ministry of Industry, however, will have to solve without delay the problems related to production and continuous supply of modern types of cages.

As to the increase in sheep breeding, we must say frankly that it deserves much more attention than it is paid to it in many okreses and enterprises. It is paradoxical at the least that many okreses in Central Slovakia and East Slovakia krajs demand a large-scale reclassification of arable land and meadows to pastures without increasing the herds of sheep at the same time.

Mandatory System

The dynamic development of livestock production will reach a turning-point this year. The increase in production of slaughter animals will substantially slow down, and the growth rates have been set in such a way as to keep pace with the population increase, but without increasing consumption per capita. It is anticipated that production of pork will remain at the present level during the entire period of the Seventh Five-Year Plan, while production of meat from slaughter cattle and sheep will increase. The critical problem is production of grain fodder.

We emphasize in particular that the entire management personnel at the kraj agricultural administrations, okres agricultural administration, unified agricultural cooperatives and state farms must strictly see to it that grain fodder supplies are properly administered. The necessary guidelines have been spelled out in the "mandatory system" which was approved by the presidium of the CPCZ Central Committee.

The differences in fodder consumption between enterprises are still too big and the protein program is not implemented consistently. For this reason, the evaluation of grain-fodders consumption and systematic implementation of adopted measures must become the foremost task of management in enterprises, okres and kraj organs and also at the ministry itself. It is necessary to analyze periodically the causes of high consumption and to find, in cooperation with services and scientific research, the way to rectify the present situation.

We highly appreciate the work of animal keepers, zootechnicians, breeding experts, veterinarians and other workers participating in livestock production. We want to morally appreciate this work and activity even more than in the past and stimulate it by material incentives.

At the present time we attach increased importance to the contractual fattening of cattle, hogs, poultry and small domestic animals in individual specialized centers. This project has still not assumed the desirable dimension so far. We must also see to it that we increase production of animal products in this way.

## Rational Administration of Food Products

In food production, our results vary and depend largely on the availability of raw materials necessary for production. Gross food production will fall short of the targets of the Sixth Five-Year Plan by Kcs 1.5 billion. The shipments of products increased by 17.8 percent during 4 years of this five-year plan. The market was supplied with products exceeding by Kcs 4.7 billion the 1975 level, and the target set by the current five-year plan for this final output of the agricultural-food complex will be surpassed. This substantial increase in shipments was made possible primarily by products of animal origin which increased by more than Kcs 2.1 billion. In addition, there was an increase in shipments of vegetable products, ready-made dishes and convenience foods, nonalcoholic beverages, dry bakery goods, flour products, vegetable fats and oils, beer and other products.

Generally speaking, the domestic market was well supplied with the basic food items and no major shortages occurred. We have not succeeded, of course, in making available the assortment of products in the structure required by trade. Most of the shortages were caused by inadequate material and technical supply to production, particularly packaging materials, equipment, but also by poor crops of some agricultural products. The economy measures taken by the CSSR government in regard to consumption of sugar and cocoa beans in the production sphere made it impossible to fully satisfy the demand for products made from these raw materials. The food industry is implementing the program of gradual reduction in the consumption of these raw materials (as is being done, after all, throughout the world). Economy measures had to be enacted also in regard to milk-fat last year due to the increased production of butter at the expense of full-fat milk.

There are problems also in supplying food production with materials and packaging from domestic suppliers, particularly bottles for beverages, glass jars for food preservation, aluminum tubes, plastics and high-quality metal sheets for manufacture of cans. These shortages should no longer exist or at least not on such a large scale. We expect the suppliers to discharge their obligations better this year.

## Emphasis on Innovations

Within the supplier-customer relations, the food industry generally tries to meet the demands of trade organizations.

In food production, the emphasis is on innovations in the assortment of available products and the more efficient processing of raw materials, which is also related to the excessive caloric value of the present-day diet. During the Sixth Five-Year Plan more than 500 new products were introduced to the market having a total value (in the first year of production) exceeding Kcs 1.4 billion. This means that the targets set for the entire period of the Sixth Five-Year Plan were surpassed. Among the most important products supplied to the market during this period were for example Nitran salami, several natural and processed cheeses, various beverages made of sour milk and flavored milks, ready-made puddings, frozen cremes, a large number of poultry specialities, fruit-based food for infants, dry yeast, nonalcoholic beer, vinea, certain types of dry bakery products, several products for diabetics and others. Essentially, these were products not previously produced by the food industry in Slovakia.

## System of Quality Control

Certain shortages in the assortment, however, stem from the subjective causes. They are due to the fact that food industry enterprises and plants do not make sufficient use of existing capacities or readily available raw materials, do not sufficiently increase production of packaged meats, vacuum packed products and so on. But the attitude of consumers is also important. In order to render processing and sources of meat more effective, it will be necessary to increase the proportion of meat products and cans in the total deliveries and to reduce the proportion of meats cut in the retail stores. This problem concerns particularly the West Slovakia and Central Slovakia krajs. Despite the lower consumption of meat and meat products in Slovakia, cured meat products still account for a relatively high ratio of overall meat supply.

The more effective utilization of raw material in the finished food products, gradual replacement of imported raw materials by the domestic ones and further expansion of the assortment will still lag behind the basic line of development of the food industry also in the Seventh Five-Year Plan. Production of food for infants and children will be expanded: this applies particularly to vegetable-based food items, but also to frozen products, convenience foods and ready-made dishes; more milk and meat specialities will be available.

We can take satisfaction in the fact that the quality of food products further improved. The proportion of products meeting the prescribed standards increased to 94.9 percent which is 10.7 percent more than in 1975. It is encouraging that this development was also registered in the key sectors providing such basic necessities as meat, milk, bread and bakery products. It is true that our food industry generally succeeded in matching the indicators of the CSR food industry. But there are still differences in the quality of certain products. To achieve a fundamental change in this respect, the comprehensive system of quality control must be enforced in the food industry and new economic tools must be applied which will be introduced on 1 January 1981 and will more significantly promote the effort to achieve better quality.

## Improving Capital Investment

A total of Kcs 30.4 billion was invested in the agricultural and food sector during the first 4 years of the current five-year plan, which was 22 percent more than anticipated by the Sixth Five-Year Plan. Nevertheless, there are serious problems and shortcomings in the construction projects with budget costs exceeding Kcs 2 million.

In agriculture, the plan targets set for putting capacities into operation will be met in regard to domestic animals and land improvement projects. The situation has substantially improved in agricultural enterprises in regard to warehouses for crops, but the plans have not been completely carried out in very important areas such as construction of agrochemical centers, rendering plants, blood drying plants and facilities for preparing compost.

The food supply to the population, adequate filling of our people's needs is a politically very sensitive matter. The work of all participants in capital investment must be improved. The VHJ's of the food industry and of the SSR Ministry of Agriculture and Food must improve the preparation of construction projects and work more closely with their suppliers. We appeal to all those who have any influence on capital investment management and ask them to do everything in their power to speed up the construction of food processing capacities. Among the most important construction projects are: a meat combine at Nove Zamky, a milk drying plant at Sered, a poultry plant at Zvolen, and a malt plant at Velky Saris, which must be completed this year. We must speed up the construction of the meat combines at Dunajska Streda and Levice, of the milk plant at Nove Mesto nad Vahom, bakeries and yeast manufacturing plants at Trebisov, the mill at Kosice.

## Complete Care of Equipment

There are areas where considerable progress has been made in mechanization. A large number of more efficient grain combines, self-propelled machines for harvesting fodder, sugar beet and potatoes have been supplied in recent years. However, a considerable departure from the guidelines of the 15th CPCZ Congress occurred in the shipments of tractors where the 5 years' backlog will amount to more than 2,300 tractors. An engineering production basic has still not been created for the comprehensive technological lines which should complete the mechanization of production processes.

A slight improvement will be achieved this year in the delivery of plows, sowing machines, combines, potato planters, but even the most urgent needs will still not be met. In this situation we lay special emphasis on the more effective utilization of existing capacities, on their remodeling, modernization and completion, on the elimination of bottlenecks in the technological process, on increasing the number of shifts worked, on the advancing of construction deadlines and on the reduction of budget costs per capacity unit.

Being fully aware of these facts, we emphasize improving the overall care of machinery, its better maintenance and good repair, and--what is by no means less important--improving the organization of management and utilization of machinery.

## More Room for Science

Under the increasingly complex conditions of expanding agricultural production, we want and must provide more room to science. There are many capable workers in our research and development centers. The results they achieve are already positively reflected in practice, particularly in grain production and the main branches of livestock production. We could also cite remarkable results achieved in the food industry.

We set much more demanding tasks for the research and development centers in the future--not only for the research institutes of our ministry, but also for those of the Slovak Academy of Sciences, universities and supplier ministries. We expect our research workers to cope with the problems of stabilization and quality of harvests of corn, potatoes, sugar beet, fodder, vegetable and fruit, while increasing the fertility of the soil at the same time. We hope that they will find technological procedures to reduce the consumption of energy, materials and raw materials in short supply. We expect them to discover new progressive directions in nutrition of agricultural plants and animals, and new general ways for achieving higher efficiency and quality. In food production, science must design better, continuous, automated and waste-free technologies.

Research will accomplish these demanding tasks also through better cooperation with the CEMA states, prompt application of experience from the entire world gained both through licenses and extended study periods abroad. In order to fulfill these complex tasks, our institutes must be better equipped both materially and technically, the forces and funds of our scientific research base must be concentrated on the most important projects, and more effective material incentives must be set up.

## Effective Management

We lay great emphasis on the subjective factor, on the development and more effective use of man's capabilities, on stimulating his interest in achieving better results. The first step toward achieving this goal is the improvement of management. As is well-known, work is in progress on the "Set of Measures" designed to improve the system of management of our national economy after 1980.

Within the general principles already approved by the supreme party and state organs, the system of management is being elaborated for the agricultural and food sector as well. We place special emphasis on the better internal balance of plans and on more effective material incentives. It is necessary to strengthen material incentives particularly for the management personnel in charge of the final stages of production and to apply bigger differentiation in the bonuses according to the results achieved in production and management. A proposal has been also prepared to provide more effective material incentives for the management and technical personnel in the lagging enterprises, if they manage to eliminate the causes of this lag within the specified deadlines.

In the 1970's, the SSR was engaged in a project of great social and political impact--the completion of the socialization of agricultural production. The plans adopted by the presidium of the CPSL Central Committee and SSR government in 1976 will be implemented. The socialist sector acquired more than 70,000 hectares of agricultural land during the first 4 years of this five-year plan, and approximately 30,000 hectares more will be acquired during the Seventh Five-Year Plan. The process of the socialization of agriculture will then be completed.

By authority of the SSR government I am submitting this report on the present status and directions for the future development of agriculture and the food industry, with an awareness of the responsibility for the purposeful accomplishment of demanding and complex tasks which the agricultural and food sector faces.

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CZECHOSLOVAKIA

## KHOZRASCHET IMPORTANT IN 1980 AGRICULTURAL PLAN

Prague STATNI STATKY in Czech No 1, Jan 80 p 1

[Article by Josef Nagr, Minister of Agriculture and Nutrition of the CSSR, Prague: "Meeting the Objectives of This Year's Plan"]

[Text] The Federal Plan for 1980 has decreed that the agricultural and food sector assure further increases in the quality of foodstuffs available on the domestic market and play a more effective role in lowering the demands of the whole national economy on imports by increasing our self sufficiency in foodstuff production. This requires an increase in the rates of growth and efficiency of agricultural production to a level necessary not only to fulfill the yearly implementation plan for the purchase of agricultural products, but also for the further development of domestic food production in the Seventh Five-Year Plan.

The December Session of the CPCZ Central Committee emphasized that the most pressing tasks include insuring an intensification and increase of grain production, of slaughter cattle and quality bulk fodder, and to create the comprehensive conditions for a proportional development of the whole agricultural and food sector. To this end it is necessary that every area and every enterprise rationally and effectively utilize to the fullest extent internal possibilities, resources and the potentials of socialist mass agricultural production, as well as the resources freed up by the plan for the labor and material assurance of objectives. At the same time special attention must be directed to the development of production and an increase in its efficiency on state farms, in accordance with the resolutions adopted by the Party Central Committee in October 1975 and in March of the past year.

By 1 January several major modifications of the economic instruments in agricultural management had been carried out, directed at the material stimulation of the implementation of planned objectives in 1980 and the Seventh Five-Year Plan, and applicable as well to the future management of state farms.

The most important measure towards the creation of the prerequisites for the self-management of state farms according to the paln, and the fuller utilization of khozraschet principles in the intra-enterprise management and organizational system, is the increase in purchase prices, differential premiums and other instruments of price compensation for deliveries of cattle and sheep husbandry products and certain other products for the purchase plan for federal stockpiles, as well as a change in constant intermediate product prices. By increasing price compensation more than increased cost increments, chiefly through a modification in the sales prices of feed mixtures and industrial fertilizers by almost Kcs 900 million on a nationwide scale, resources make their way into the financial plans of enterprises which to date have been freed up from the federal budget as supplementary payments in the course of a given year or in a yearly financial settlement reflecting the current strengthening of the overall sum of these resources.

The strengthening of the khozraschet position is further assisted by a refined and more greatly differentiated system for formulating and defining plan performance, cost development and profit formation, which is based on an analysis of current development and objective requirements for increasing the management efficiency of individual state farms. The function of the plan, as a management instrument and starting point for the stimulation of worker activities aimed at developing labor initiatives for the fulfillment of quality goals in particular, is also reinforced by the fuller integration of individual parts of the plan along the whole management axis, by the comprehensive appraisal of investment requirements in relation to their assurance with financial resources, and the supplementing of the turnover fund by means of full coverage for an increase in the number of domestic animals while maintaining its existing percentage in the coverage of remaining inventories.

The measures which have been introduced significantly expand the space for the rational specialization of enterprise and intraenterprise production, for interenterprise cooperation, for eventual mass production concentration according to the projected direction of the production of individual state farms, for an economical technological and investment policy and especially for the economic consolidation of management on khozraschet principles. Simultaneously, however, the responsibility substantially increases under self-management for the efficient utilization of labor, material and financial resources. Each state farm bears full responsibility for achieved resulted, including losses which may occur, nor can it count on the shortcomings in the coverage of its financial requirements to be defrayed by the federal budget at a later date.

In the formulation of 1980 enterprise plans it is essential to fully adapt the system of intraenterprise management and organization to these modified economic and planning instruments, to apply consistently in them the khozraschet principle, strengthen the inspection procedures for plan fulfillment and, in technical-organizational and rationalizational measures, create the physical conditions for the efficient intensification of plant and animal production.

The requisite incorporation of supraenterprise measures in the planning and economic system for the management of the state farms into the internal activities of enterprises demands, above all, a breakdown of objectives and the resources needed for their assurance by all relevant intraenterprise organizational entities and their subordinate work places, the fixing of personal and collective responsibility and, simultaneously, the conditions of material incentives related to the productive and economic performances of operations and centers, as well as the degree of their dependence on enterprise-wide performances.

Strengthening the khozraschet position of state farms will create favorable conditions for the consistent application of compensation according to merit, performances and work quality, for an increase in efficiency of the incentive components of wages tied to the guaranteeing of the economical utilization of capital resources, as well as of the material and labor components of production costs with the objective of achieving not only greater intensity, but also the requisite effectiveness in production and its related activities.

Along with these planning economic measures it is necessary to create, through politico-organizational and educational work, the conditions for increased worker participation in management, for the conclusion of concrete collective and individual socialist commitments to assure, above all, the qualitative objectives of the plan, for the development of progressive forms of socialist competition. The formulation and implementation of comprehensive programs of worker care must be an integral part of the sets of relevant intraenterprise measures. These modifications can provide the requisite productive and economic effect only on the condition that they will not be judged solely from the accounting point of view of their impacts on earnings and costs, on the current revenue situation of the state farm, but instead serve as the impetus for the adoption of concrete material and organizational measures to assure the increased intensity and efficiency of production.

It is necessary that all zootechnologists, agronomists, mechanics and other operational experts collectively formulate and implement programs for the improvement of the structure of production, the full utilization and fertilization of agricultural land, the gradual concentration and specialization of individual production branches and activities according to conceptual targets, i.e. the many faceted intensification of plant and livestock production, the lowering of losses and the guaranteeing of additional material objectives in 1980 and the Seventh Five-Year Plan, as identified in the decrees of the CPCZ Central Committee. Special attention must be paid to the formulation, implementation and inspection of the fulfillment of measures directed at the highly frugal utilization of industrial and state farm fertilizers and fodder, electrical energy, gasoline, diesel fuel, lubricating oils, fuels and to the rationalization of technical and non-technical transport. The constraints imposed by these reductions, which the plan breakdown will specify, must be followed. More care must also be devoted to the rational and efficient utilization of resources prescribed by the plan for the area of investments, and especially also in relation to the exhaustion of all possibilities for the more efficient use of existing capital resources.

The fundamental requirement to assure that the measures for increasing the effectiveness of state farm management become incorporated in this very year into concrete productive and economic results is the required articulation of politico-organizational, material and economic measures carried out by the management of individual state farms and their thorough integration in the development of socialist competition directed at the implementation of the key objectives of the state and enterprise plan. This is simultaneously also the main requirement for the successful start to the fulfillment of the resolutions of the 13th CPCZ Central Committee Session in the Seventh Five Year Plan.

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## BRIEFS

NEW ETHYLENE PRODUCTION FACILITY--The "Petrochemie II" ethylene unit of the Chemapetrol enterprise in Litvinov was put on trial run on 28 April. The construction of the second stage of the petrochemical complex in Litvinov, built in the Sixth 5-Year Plan at a cost of more than Kcs6 billion, was thus completed. The unit has a planned annual capacity of 450,000 tons of ethylene and will supply the synthetic rubber production of the Kaucuk Kralupy concern enterprise, the polypropylene and low-pressure polyethylene productoon in the "Chemical Plants of Czechoslovak-Soviet Friendship" concern enterprise in Litvinov and the polyvinylchloride production in the Spolana Neratovice concern enterprise. The ethylene will also be exported to the GDR, on the basis of the CSSR-GDR intergovernmental agreement on cooperation in the production and use of olefins. [AU022015 Prague RUDE PRAVO in Czech 29 Apr 80 p 2]

CSSR EXPERTS FOR CAMBODIA--Czechoslovakia will send to Cambodia a group of specialists who will assess the technological state of selected enterprises and propose specific measures for their reconstruction. This was announced in Phnom Penh. [Text] [AU022015 Prague RUDE PRAVO in Czech 30 Apr 80 p 8]

SLOVAK ECONOMY RESULTS--In the first quarter 1980 the centrally managed industrial organizations in Slovakia fulfilled the domestic market supply plan 103.3 percent; the plan of exports to socialist countries was 11.6 [sic] percent, and to nonsocialist countries 109.5 percent. Of the 237 industrial enterprises checked by statisticians for fulfillment of the seven mandatory indicators, only 117 completed the requirements of all seven indicators; the rest had fulfilled 5-6 or fewer. Six of 13 concerned enterprises failed in deliveries for key building projects; and only 11.8 percent of annual tasks for the volume of work and deliveries for the key projects were fulfilled. The deadlines in seven important building projects have not been met, either. The railway transport timetable was short by 2.6 percent, and the loading timetable 3.2 percent. [AU022015 Bratislava SMENA in Slovak 29 Apr 80 p 4]

COSTUME JEWELRY EXPORTS--Exports to the West of costume jewelry by Jablonex enterprise have increased between 1955 and 1979 by 274 percent, compared to the exports to the socialist countries during the past seven years, which have increased by 237 percent. In 1979 this represented an increase in net exports to the West by Kcs 59.1 million. The USSR is the largest consumer, followed by the Arab countries. The U.S., England and Spain are mostly interested in semifinished products, glass pearls and cut glass stones, Latin American countries in metal costume jewelry. [Prague LIDOVA DEMOKRACIE in Czech 20 May 80 p 6]

WEATHER DELAYS SOWING--In the Czech Socialist Republic [CSR] spring cereals are sown roughly 97 percent, leaving about 22,000 hectares to be sown. Leguminous crops are sown 90 percent; and sugar beet must be sown on roughly 3,500 hectares. Potatoes are sown on only three-tenths of the planned acreage; and early varieties on 92 percent of the planned acreage, leaving more than 85,000 hectares to be sown. [Prague PRACE in Czech 6 May 80 p 6 AU]

SPRING SOWING--More than 43,000 hectares of spring cereals are sown in the north Bohemian region, leaving 1,300 hectares, mostly in submountainous areas, to be sown. [Prague LIDOVA DEMOKRACIE in Czech 7 May 80 p 1 AU]

SOWING IN SLOVAKIA--Spring cereals in Slovakia must still be sown on about 10,000 hectares; since the sowing datelines in southern and central Slovakia have expired, the situation will be solved by a commission of the Slovak Ministry of Agriculture. Sunflower is sown on about 18,000 of the total 19,730 hectares planned. The state sowing plan for leguminous crops has been fulfilled, but a further 4,000 hectares will be sown over and above the plan. Sugar beet is sown 98 percent; but only one-third of the 40,000 hectares planned for central and eastern Slovakia have been planted with potatoes. [Bratislava SMENA in Slovak 7 May 80 p 7 AU]

CSO: 2400

HUNGARY

## SOME ENTERPRISES SEMIPARALYZED BY NEW REGULATIONS

Budapest FIGYELO in Hungarian 30 Apr 80 p 6

[Article by Dr Gyorgy Varga, deputy editor-in-chief of FIGYELO: "Changing Enterprise Behavior"]

[Text] It is still early to give an opinion about the effect of the price and regulator system introduced at the beginning of the year or about changes in enterprise behavior; all the more so because the prices which became effective at the beginning of the year are only taking effect this month and the functioning of the price mechanism is far from having unfolded.

Having expressed all these reservations in advance we might take the risk of at least noting a few signs indicative of changes in enterprise behavior. Help in this is given by statistics, by the industrial orders on hand, by consultations with several enterprises and by that debate which took place recently in the economics council of the Hungarian Chamber of Commerce.

Certain signs suggest that the sensitivity of the enterprises to costs and prices is increasing. More and more enterprises are looking for ways to save material and energy; an effort is developing to increase the ratio of added value in production. In the interest of this they are more circumspect in the selection of raw and primary materials to be processed, from the viewpoint of uuality and price alike.

It is a favorable sign that the enterprises are striving to stabilize their positions or expand their markets on the competitive export markets despite the marketing difficulties. Enterprise price work is improving and the links between producing and foreign trade enterprises are becoming closer.

And if we are to talk about export we must also note that according to the opinion of some enterprises the really efficient and competitive export margin in production is narrower than the present volume. On the basis of methods of competitive price formation an export of smaller volume than at present would be economically favorable for them--at least with the given production structure--but because of the "expectations" being made of them they are still satisfying certain volume obligations. Certainly, even national economic interests would frequently make it advantageous to decrease volume if we could thus save on imported raw materials and energy (which we would not otherwise sell in an efficient manner in the form of processed products). The restructuring and possible reduction in the volume of export is only a temporary phenomenon; our interests are tied to increasing the volume of competitive and efficient export because this is an indispensable condition for restoring the foreign economic balance.

In an earlier article ("Investment--Too Much or Too Little?", FIGYELO, 2 April 1980) we already mentioned the general reluctance to undertake development. It is a fact that we are meeting with little enterprise initiative although there are a number of development ideas and plans lying in the desk drawers of enterprise leaders which they are not bringing out because of uncertainty deriving in part from the restructuring of the market orientation and in part from the price and regulator syste . In some enterprises they "do not have time" to take out the development plans because of the multiple round repricing work.

The question arises, however, whether the present caution might not take its revenge, possibly producing a critical situation in 2-3 years, because they neglected to make (in time) those decisions which would ensure the future competitiveness of the enterprise. Not even to speak of the fact that the development plans being kept in the desk drawers will become obsolete in the meantime.

In addition to what has been said already, the refraining from investment cannot be explained simply by the caution of the enterprises. The enterprises are reacting rationally to an economic policy aimed at limiting investment. And there is something else too. In the past the investment and credit assumption enthusiasm of the enterprises was greatly encouraged by the fact that they received support for a considerable number of the investments. This possibility has greatly decreased now and this has decreased their interest in developmental credits.

So the problem is not that there is not a new wave of investment--this is a favorable phenomenon--the problem is that for the time being they have not produced those developmental proposals which would ensure in the future, in harmony with new conditions, the conditions for an efficient development of production and transformation of structure. This--among other things--is one condition for increasing the volume of economical export.

The general retreat may also explain the fact that the reduction in the growth rate of industrial production is a quite general phenomenon; it can be experienced even in those branches where a swifter rate of development would be desirable. Even now one cannot experience a differentiation in the development of production. It is as if a low rate of growth were now the salvation and if sometimes it is not appropriate to remain below an annual growth rate of 6-7 percent it is as if the waving of some magic hand prevented the enterprises from going beyond the "minimal maximum."

Naturally I do not want to encourage a general increase in the rate of growth. Not at all! But the low rate of growth, the stagnation or reduction of production in some branches of industry, should not be a general phenomenon but rather an average which is the result of an ever increasing differentiation. There should be a greater number of enterprises than at present which develop at a relatively swift rate, on the basis of their competitive and efficient production. If there is not a suitable ratio of dynamically developing enterprises in the national economy then the general reduction in the rate of growth could have an effect on the many-sided development of the economy. Not even to speak of the fact that under these conditions we could not create a lasting economic balance either. Adjusting to the "average" in a period of slow growth would be accompanied by greater economic risk in a period of swift growth.

The differentiation in the development of the enterprises--naturally on the basis of economic efficiency and international competitiveness--is a process subject to the influence not only of the regulator system but also of the entire system of economic institutions.

The differentiated development of the enterprises cannot be equated--according to our previous interpretation and practice--with a differentiated growth of capacity. An increase in capacity is not necessarily the path of development; and this should be better expressed than heretofore in credit policy too--to help the realization of development plans among other things.

For example, a large part of the export development bank credits have been used by a few large industrial enterprises, usually to realize significant investments or to increase capacity. Frequently these developments have not been integrated into the production structure of the enterprise but rather constitute a sort of stressed island. Thus it can happen that the development makes possible competitive and economical export only for the short term.

I feel that both the enterprises and the bank organs should show greater interest in rationalizing developments (investments) which contain a lot of intellectual work. In the extreme case one can even imagine that capacity would decrease as a result of the development, but capital efficiency and productivity would improve, the product would become more modern and profit would increase.

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HUNGARY

## MINISTER SUMMARIZES ACHIEVEMENTS, TASKS OF CHEMICAL INDUSTRY

Budapest MAGYAR KEMIKUSOK LAPJA in Hungarian No 1, 1980 pp 1-9

[Article by Pal Simon, Minister of Heavy Industry: "Achievements and Further Tasks of Chemical Industry During the Fifth Five-Year Plan"]

[Text] Nearly 5 years ago, I informed the readers of MAGYAR KEMIKUSOK LAPJA of the more important goals and tasks of the chemical industry's five-year plan. Now that we have entered the last year of the plan period, we ought to survey the success of its implementation.

The economic planning effort is now arriving at the stage where it is becoming possible to draw up the more important tasks of the Sixth Five-Year Plan.

The purpose of this article is to relate the directive principles and more important tasks of chemical industry development, based on the achievements and experiences of the Fifth Five-Year Plan.

### Appraisal of the Probable Fulfillment of Chemical Industry's Fifth Five-Year Plan

### Production, Productivity

In harmony with the goals of the national economy plan, chemical industry is industry's most dynamically developing branch. The gross social value of its production during the plan period--in comparable prices--doubled. Its growth rate is twice the industry average.

With this probable result (annual gross production increase of 8.5 percent), chemical industry is somewhat lagging behind the 155 percent (annual 9.2 percent) growth projected in the law of the plan.

This deviation, which can be considered minimal, appears as the combination of a number of factors which affect production values. The changes in import opportunities (e.g., we will process 3.3 million tons less petroleum during the five years) mean significant production value deficiencies in certain branches which are dependent on imported raw materials (petroleum processing industry, rubber industry). At the same time, in the areas of aromatics production and basic synthetic materials manufacturing, considerable surplus is anticipated from probable above plan performance.

It is apparent from the data of figure 1 that the development dynamism of the chemical manufacturing industry is widely differentiated. In harmony with central goals, the most vigorously developing manufacturing branches are those of petrochemistry and organic base materials manufacturing, or to be more specific, basic synthetic materials manufacturing, synthetics processing, fiber manufacturing, the pharmaceuticals industry, plant protection agent and artificial fertilizer manufacturing--all on the basis of the first two mentioned.

It is apparent from the data of figure 2, that with the exception of automobile tire casing manufacturing, which is being done through the international cooperation framework, significant increases are probable in the manufacturing of more important products.

In general, chemical industry is fulfilling the production plan for emphasized products. According to the 1980 prognosis, plan surpassing performance is probable for many products (sulphuric acid, polyethylene, truck tire casings). However, smaller shortfalls are expected for certain products (PVC powder, artificial fertilizers), primarily because of decreases in demand and the halting of unprofitable production, respectively.

During the Fifth Five-Year Plan, the vigorous development in the productivity of social production became one of the chief courses of economic policy. The sources of development characterized as extensive--the inclusion of large amounts of new labor force, or rather, the possibilities for the creation of populous new places of employment--have, for the most part, been exhausted. In order to increase the productivity level, at the beginning of the plan period, the ministry summoned its enterprises to compare their productivities with those of the leading enterprises of industrially developed countries, and to prepare planned measures to overtake the current level of the leaders by 1985. According to the assessment, at the beginning of the plan period enterprise productivity was not even half of the leading level. Chemical industry enterprises made significant efforts (organizational measures to reduce lost time, better utilization of high performance machinery, utilization of computer technology for directing production, etc.) to implement the 10 year productivity improvement program.

According to the projection for 1980 (figure 3), the social production value per employee is to increase by 57.2 percent (9.4 percent annually) during the plan period. The productivity increase is to take place despite a 4.7 percent labor population decrease. Through the end of 1980, 5426 individuals are expected to be released from the chemical industry to be redeployed of other branches of the national economy. Greater than average productivity increases are expected in the pharmaceuticals industry, in organic-inorganic chemical industry, in synthetics processing and in the cosmetics and household chemical industries.

Table 1

(1) A vegyipar társadalmi termékértékének várható alakulása az V. ötéves tervidőszakban (M Ft; 1976. évi árszinten)

| (2) Gyártási ág | 1975 | 1980 | (3) Növekedés | |
|---|---|---|---|---|
| | | | (4) mértéke % | (5) éves üteme % |
| (6) Műtrágyagyártás | 5 829,5 | 9 860 | 169,1 | 11,0 |
| (7) Növényvédőszergyártás | 5 044,8 | 9 080 | 180,0 | 12,5 |
| (8) Petrolkémiai és egyéb szerves alapanyaggyártás (intermedierrel) | 4 778,6 | 10 387 | 217,4 | 16,8 |
| (9) Műanyag alapanyaggyártás | 2 210,1 | 5 522 | 249,9 | 20,1 |
| (10) Műanyagfeldolgozó ipar | 7 450,9 | 11 006 | 147,7 | 8,2 |
| (11) Vegyiszálgyártás | 1 401,9 | 2 484 | 177,2 | 12,1 |
| (12) Szervetlen alapanyaggyártás | 1 572,0 | 2 575 | 163,8 | 10,4 |
| (13) Ipari gázgyártás | 955,4 | 1 157 | 121,1 | 3,9 |
| (14) Műszéntermelés | 108,6 | 138 | 127,1 | 4,9 |
| (15) Lakk-festékgyártás | 3 405,9 | 4 593 | 134,9 | 6,2 |
| (16) Kozmetika- és háztartásvegyipar | 1 481,2 | 2 114 | 142,7 | 7,4 |
| (17) Szintetikus mosószerek és detergensek gyártása | 608,4 | 726 | 119,3 | 3,5 |
| (18) Ipari segédanyaggyártás | 1 336,4 | 1 327 | 99,3 | – 0,14 |
| (19) Gyógyszeripar (finomvegyszerrel, állatgyógyászati és takarmányadalékgyártással együtt) | 12 602,9 | 21 491 | 170,5 | 11,3 |
| (20) Gumiipar | 5 760,0 | 7 867 | 136,6 | 6,5 |
| (21) Fotókémiai ipar | 657,7 | 700 | 106,4 | 1,25 |
| (22) Kőolajfeldolgozó ipar | 28 800,0 | 33 807 | 117,4 | 3,2 |
| (23) Városi gázgyártás | 5 325,6 | 9 370 | 176,0 | 12,0 |
| (24) Vegyipari egyéb tevékenység | 2 076,5 | 2 781 | 133,9 | 6,0 |
| (25) Szoc. vegyipar összesen: | 91 406,3 | 137 000 | 149,9 | 8,5 |

Key to Table 1:

1. Probable result of chemical industry's social production value during the Fifth Five-Year Plan

2. Manufacturing branch

3. increase

4. rate (percentage)

5. annual rate (percentage)

6. Fertilizer manufacturing

7. Plant protection agent manufacturing

8. Petrochemicals and other organic base materials (including intermediaries)

9. Synthetic base materials

10. Synthetics processing industry

11. Chemical fiber manufacturing

12. Inorganic base materials

13. Industrial gas manufacturing

14. Carbon manufacturing

15. Paints and varnishes

16. Cosmetics and household chemicals

17. Synthetic laundry preparations and detergents

18. Industrial ingredients

19. Pharmaceuticals (including refined chemicals, veterinary products and feed additives

20. Rubber industry

21. Photochemical industry

22. Petroleum processing industry

23. City gas manufacturing

24. Other chemical industry activities

25. Total socialist chemical industry

Table 2

(1) *Fontosabb vegyitermékek termelése*

| (2) Termék megnevezése | (3) Mennyiségi egység | 1975 tény (4) | 1980 terv (5) | 1980/1975 % |
|---|---|---|---|---|
| (6) Benzin | et (35) | 892,0 | 2040,0 | 107,8 |
| (7) Gázolaj (tüzelőolajjal) | et | 3467,0 | 3930,0 | 113,4 |
| (8) Fűtőolaj | et | 3433,0 | 3560,0 | 103,7 |
| (9) Ammónia | et | 624,0 | 960,0 | 153,9 |
| (10) Kénsav (technikai) | et | 618,0 | 660,0 | 106,8 |
| (11) Marónátron | et | 91,2 | 197,0 | 216,0 |
| (12) Nátrium-tripolifoszfát | et | — | 30,0 | — |
| (13) Etilén | et | 126,0 | 260,0 | 206,3 |
| (14) Propilén | et | 63,0 | 126,0 | 200,0 |
| (15) Benzol | et | 28,1 | 111,0 | 395,0 |
| (16) Toluol | et | 32,1 | 81,0 | 252,3 |
| (17) Xilol elegy | et | 4,2 | 60,0 | 1428,6 |
| (18) O-xilol | et | — | 12,0 | — |
| (19) Ftálsavanhidrid | et | 6,1 | 18,0 | 295,0 |
| (20) Maleinsavanhidrid | et | — | 12,0 | — |
| (21) Formaldehid (40%-os) | et | 27,7 | 32,0 | 115,5 |
| (22) Műanyagok (összesen) | et | 123,5 | 340,0 | 275,3 |
| (23) Polietilén | et | 35,7 | 51,0 | 142,9 |
| (24) Polipropilén | et | — | 40,0 | — |
| (25) PVC por és kemény granul. | et | 39,9 | 180,0 | 451,1 |
| (26) Vegyiszálak | et | 20,1 | 27,4 | 136,3 |
| (27) Szintetikus szálak | et | 11,4 | 18,4 | 161,4 |
| (28) (29) Nitrogénműtrágya hatóanyag | et | 422,0 | 670,0 | 158,8 |
| (30) Foszforműtrágya hatóanyag | et | 218,0 | 260,0 | 119,3 |
| (31) Személygépk. és targonca abr. köp. | edb (36) | 123,0 | 25,0 | 20,3 |
| (32) Tehergk. abroncs köpeny | edb | 591,0 | 820,0 | 138,8 |
| (33) Szintetikus mosószerek | et | 50,4 | 94,0 | 186,5 |
| (34) Film (összesen) | em² | 906,0 | 1130,0 | 124,7 |
| Fotopapír | em² (37) | 9053,0 | 7810,0 | 86,3 |

Key: (Table 2)

1. The production of more important chemical products

2. Product name

3. Unit of quantity

4. actual

5. estimated

6. Gasoline

7. Diesel fuels (including fuel oil)

8. Heating oil

9. Ammonia

10. Sulphuric acid (technical)

11. Caustic Lye

12. Sodium tripolyphosphate

13. Ethylene

14. Propylene

15. Benzol

16. Toluol

17. Xylene compounds

18. O-xylene

19. Phtalic acid anhydride

20. Malein acid anhydride

21. Formaldahyde

22. Synthetics (total)

23. Polyethylene

24. Polypropylene

25. Powdered and hard granulated PVC

26. Chemical fibers

27. Synthetic fibers

28. Nitrogenous fertilizers

29. Phosphorus fertilizers

30. Autobobile and cart tire casings

31. Truck tire casings

32. Synthetic detergents

33. Film (total)

34. Photographic paper

35. in 1000 tons

36. 1000 pieces

37. 1000 square meters

Chemical industry enterprises are meeting the timely (first five year) goals of the productivity development program.

With its dynamically increasing production, chemical industry is promoting growth in the national economy's chemicalization level. It is apparent from the data of figure 4 that the increase for specific production indicators for all selected products is surpassing the increase for specific consumption indicators. Accordingly, increasingly larger proportions of our growing needs are being met from domestic production. To increase this proportion is our ongoing task.

Table 3

(1) A vegyipar termelékenységi mutatói az V. ötéves tervidőszakban

| Ágazat | (3) Bruttó társadalmi termékérték (1976. évi áron) MFt | | | (4) Foglalkoztatott létszám* fő | | | (5) Egy főre jutó társadalmi termék-érték eFt/fő/év | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1976 (6) | 1980 progn. | 1980/76 % | 1976 | 1980 progn. | 1980/76 % | 1976 | 1980 progn. | 1980/76 % |
| Szerves-szervetlen vegyipar 7) | 26 527 | 44 381 | 167,3 | 42 008 | 41 110 | 97,9 | 631,2 | 1079,6 | 171,0 |
| Kőolajfeldolgozó-ipar 8) | 29 080 | 36 607 | 125,9 | 7 396 | 6 830 | 92,4 | 3931,9 | 5359,7 | 136,3 |
| Városi gázgyártás 9) | 6 402 | 9 370 | 146,4 | 12 637 | 12 400 | 98,1 | 506,6 | 755,6 | 149,2 |
| Gyógyszeripar 10) | 14 586 | 26 200 | 179,6 | 23 912 | 23 500 | 98,3 | 609,9 | 1114,9 | 182,8 |
| Kozmetikai és háztartásvegyipar 11) | 2 176 | 2 876 | 132,2 | 2 147 | 1 710 | 79,7 | 1013,5 | 1681,9 | 165,9 |
| Lakk- és festékipar 12) | 1 373 | 1 810 | 131,8 | 1 435 | 1 400 | 97,6 | 956,8 | 1292,9 | 135,1 |
| Gumiipar 13) | 5 897 | 7 986 | 135,4 | 11 779 | 11 030 | 93,6 | 500,6 | 724,0 | 144,6 |
| Műanyagfeldolgozó ipar 14) | 5 336 | 7 771 | 145,6 | 15 214 | 13 120 | 86,2 | 350,7 | 592,3 | 168,9 |
| Szocialista vegyipar összesen: 15) | 91 406 | 137 000 | 149,9 | 116 526 | 111 100 | 95,3 | 784,4 | 1233,1 | 157,2 |

* Ipari tanulók nélkül 16)

Key: (Table 3)

1. Chemical industry's productivity indicators during the Fifth Five-Year Plan

2. Branch

3. Gross social product value (1976 prices, in million forints)

4. Number of employees

5. Per capita social production value- 1000 forints per capita per year

6. estimated

7. Organic-inorganic chemical industry

8. Petroleum processing industry

9. City gas manufacturing

10. Pharmaceutical industry

11. Cosmetic and household chemical industry

12. Paint and varnish industry

13. Rubber industry

14. Synthetics processing industry

15. Total socialist chemical industry

16. Without industrial students

Table 4.

1) Kemizálási anyagok

| Megnevezés 2) | M.e.3) | 1975 4) | 1980 progr. | 1980/1975 % |
|---|---|---|---|---|
| Egy ha mezőgazdaságilag megművelt területre* eső 5) | | | | |
| — műtrágyatermelés (hatóanyagban összesen) 6) | kg/ha | 118,8 | 174,1 | 146,5 |
| ebből: nitrogén 7) | kg/ha | 80,6 | 125,4 | 155,6 |
| foszfor 8) | kg/ha | 38,1 | 48,7 | 127,8 |
| — műtrágya felhasználás (hatóanyagban összesen) 9) | kg/ha | 276,8 | 318,3 | 116,2 |
| ebből: nitrogén 10) | kg/ha | 97,5 | 119,8 | 122,9 |
| foszfor 11) | kg/ha | 78,1 | 89,9 | 116,1 |
| káli 12) | kg/ha | 100,7 | 108,6 | 107,9 |
| Műanyagtermelés 13) | kg/fő | 12,1 | 31,7 | 262,0 |
| Műanyagfelhasználás 14) | kg/fő | 20,6 | 32,6 | 158,3 |
| Vegyiszáltermelés 15) | kg/fő | 1,9 | 2,5 | 131,6 |
| ebből: szintetikus szál 16) | kg/fő | 1,1 | 1,7 | 154,6 |
| Vegyiszál-felhasználás 17) | kg/fő | 5,9 | 7,7 | 130,5 |
| ebből: szintetikus szál 18) | kg/fő | 3,3 | 4,9 | 148,5 |
| Összes mezőgazdaságilag megművelt terület 19) | ezer ha | 5495 | 5 341 | |
| Lakosság 20) | fő | 10 540 | 10 735 | |

* Szántó + kert + szőlő + gyümölcsös 21)

Key:

1. Chemicalization products
2. Designation
3. quantitative unit
4. estimate
5. Per agriculturally cultivated area
6. Fertilizer production (total agents)
7. of this: nitrogen
8. phosphorus
9. fertilizer utilization (total agents)
10. of this: nitrogen
11. phosphorus
12. potassium
13. Synthetics production
14. Synthetics utilization
15. Chemical fiber production
16. of this: synthetic fibers
17. Chemical fiber utilization
18. of this: synthetic fibers
19. Total agriculturally cultivated area
20. Population
21. Plowed + garden + vineyard + orchard
22. kilograms per hectare
23. kilograms per person
24. per 100 hectares
25. per 1000 persons

Development, Technical Level, Production Structure

The Fifth Five-Year Plan has indicated the chief directions of chemical industry development in the following:

—to increase chemical industry processing of hydrocarbons, to expand the range of olefin plants and the complex and profitable exploitation of its products, and to increase profitability;

--rapid development in synthetic fiber manufacturing;

--to better supply agriculture with modern fertilizers, plant protection agents, veterinary medicine and feed supplementing preparations;

--further development of the modern, profitable production structure of the pharmaceutical industry.

The alteration of production structure, which has been made a goal, has made, first of all, the acceleration of technical development and the institution of modern production procedures necessary.

As a result of selected large investments, the expansion of the range of olefin plants, the complex and profitable exploitation of the products, primarily in synthetic materials and fiber manufacturing have been accomplished.

The Hungarian Viscosa factory's 6,000 tons per year capacity polyacrylnitril fiber manufacturing second plant unit began production before the planned deadline. The development of polyacrylnitril fiber manufacturing, which represents the leading level, is making the replacement of capitalist imports possible through fiber substitution. The Tisza Chemical Comlex [TVK] likewise began production in its new 40,000 tons per year polypropylene plant so far ahead of the planned production schedule that we are already expecting 18,000 tons of export basis in 1980. The PVC-III complex put into operation by the Borsod Chemical Complex annually produces 150,000 tons of powdered PVC, 3,500 tons of shock resistant PVC, 124,000 tons of caustic lye plus 110,000 tons of chlorine and 160,000 tons of vinyl chloride, which it utilizes for PVC manufacturing. Eighty thousand tons of the powdered PVC is for capitalist export.

The manufacturing of fertilizers, plant protection agents, veterinary medicine products and feed supplements is increasing significantly during this plan period in order to increasingly satisfy the requirements of agriculture. The new fertilizer factory of the Pet Nitrogen Works, which prepares modern combination fertilizers, began operation at the beginning of the plan period. In line with the requirements, sufficient broadening of the product selection is being implemented. With the entry of this plant, ingredient production (without the intermixed potassium fertilizers originating from imports) and the value of production (in unchanged prices) are increasing by 47 and 70 percent, respectively. Thus the selection is being shifted in the direction of more modern and more valuable products.

The value of plant protection agent manufacturing--partly as a result of pharmaceutical industry diversification--is increasing by 80 percent. In 1980 the enterprises manufacturing plant protection agents are fulfilling agriculture's needs with 45 preparations, 15-16 more than in 1975. Seventy-seven percent of the requirements can be fulfilled from domestic production. In addition, a significant amount (primarily in ruble accounting) of export can also be realized. Veterinary pharmaceuticals and feed supplement production is to increase by three percent during the plan period. From these products, pharmaceuticals industry is supplying 4.8 billion forints worth to agriculture in 1980. The production of the pharmaceuticals industry is primarily export oriented. The more than 70 percent production rise is making the doubling of the dollar accounting export and the one and one half fold increase of the ruble accounting export respectively possible.

In the area of petroleum processing, significant capacity increasing is being implemented. Through 1980, more than 8.5 million tons of processing capacity is being prepared at the Duna and Tisza petroleum industry enterprises.

During the plan period, 58.1 billion forints are being invested in the chemical industry (figure 5). Nearly one half of this sum is going to the organic-inorganic chemical industry. Sixty-three percent of the investment total is form enterprise resources (during the last plan period, the figure was only 40 percent). Among the enterprise investments, the developments of the pharmaceuticals, plant protection agent and rubber industries are the ones primarily affecting chemical industry's branch structure. Figure 6 reveals the structure changes calculated on the basis of social product values.

Table 5.

(1) A vegyipar beruházásai az V. ötéves tervidőszakban (folyó áron, mrd Ft-ban)

| Ágazat (2) | | 1976 | 1977 | 1978 | 1979 várh. (3) | 1980 progn. (4) | 1976—80 összesen (5) | 6) Megoszlási arány % |
|---|---|---|---|---|---|---|---|---|
| Szerves szervetlen vegyipar | (7) | 5,6 | 7,0 | 5,8 | 4,6 | 3,1 | 26,1 | 44,9 |
| Kőolajfeldolgozó ipar | (8) | 2,6 | 2,4 | 2,7 | 2,1 | 1,3 | 11,1 | 19,1 |
| Városi gázgyártás | (9) | 1,1 | 1,2 | 1,1 | 1,2 | 1,1 | 5,7 | 9,8 |
| Gyógyszeripar | (10) | 1,2 | 1,5 | 2,2 | 1,8 | 1,9 | 8,6 | 14,8 |
| Gumiipar | (11) | 0,4 | 0,6 | 0,7 | 0,6 | 0,2 | 2,5 | 4,3 |
| Műanyagfeldolgozó ipar | (12) | 0,5 | 0,7 | 0,6 | 0,5 | 0,8 | 3,0 | 5,2 |
| Egyéb vegyipar | (13) | 0,1 | 0,1 | 0,2 | 0,4 | 0,3 | 1,1 | 1,9 |
| Szoc. vegyipar összesen | (14) | 11,5 | 13,5 | 13,2 | 11,2 | 8,7 | 58,1 | 100,0 |

Key: (Table 5)

1. Chemical industry investments during the Fifth Five-Year Plan (in current prices, in billion forints)

2. Branch

3. probable

4. estimated

5. total

6. Distribution ratio

7. Organic-inorganic chemical industry

8. Petroleum processing industry

9. City gas manufacturing

10. Pharmaceutical industry

11. Rubber industry

12. Synthetics processing industry

13. Other chemical industry

14. Total socialist chemical industry

Intensification, as the fundamental instrument of increasing productivity achieved a significant role during the plan period. From the 4.6 billion forints invested in intensification from the combined bases of 22 large enterprises which represent 80 percent of chemical industry, 10-11 billion forints worth of additional production value is being achieved.

The doubling of the capacity of TVK's high pressure polyethylene plant was completed in addition to the plan. Also completed were the development in TVK to extract twice hydrogenated pirobenzene benzol fractions, and the intensification of DKV's [Duna Chemical Complex] aromatics extraction plant. As a result of these, nearly 60,000 tons of additional benzol production is being realized already in 1980.

From among the investments which are expanding the convertible export basis, noteworthy are the retooling of the EGYT [United Pharmaceutical and Nutriment Chemistry Plant], the completion of the Dopegyt plant, the production increase in humane, or rather, veterinary pharmaceutical products, the development of alpha phenylglycene and plant protection agent manufacturing by the Chinoin Pharmaceuticals factory, and the development of steel radial and agricultural tires by the Taurus Rubber Industry Enterprise.

Table 6.

(1) **A vegyipar szerkezetének alakulása a társadalmi termékérték alapján számítva (%-ban)**

| Gyártási ág (2) | 1975 | 1980 |
|---|---|---|
| Műtrágyagyártás (3) | 6,4 | 7,2 |
| Növényvédőszer-gyártás (4) | 5,5 | 6,6 |
| Petrolkémiai és egyéb szerves alapanyaggyártás (intermedierrel) (5) | 5,2 | 7,6 |
| Műanyag alapanyaggyártás (6) | 2,4 | 4,0 |
| Műanyagfeldolgozó ipar (7) | 8,3 | 8,1 |
| Vegyiszálgyártás (8) | 1,5 | 1,8 |
| Szervetlen alapanyaggyártás (9) | 1,7 | 1,9 |
| Ipari gázgyártás (10) | 1,0 | 0,8 |
| Műszéntermelés (11) | 0,1 | 0,1 |
| Lakk festékgyártás (12) | 3,7 | 3,4 |
| Kozmetika- és háztartásvegyipar (13) | 1,6 | 1,6 |
| Szintetikus mosószerek és detergensek gyártása (14) | 0,7 | 0,6 |
| Ipari segédanyaggyártás (15) | 1,5 | 1,0 |
| Gyógyszeripar (finomvegyszerrel, állatgyógyászati és takarmányadalék gyártással együtt) (16) | 13,8 | 15,7 |
| Gumiipar (17) | 6,3 | 5,7 |
| Fotókémiai ipar (18) | 0,7 | 0,5 |
| Kőolajfeldolgozó ipar (19) | 31,5 | 24,7 |
| Városi gázgyártás (20) | 5,8 | 6,8 |
| Vegyipari egyéb tevékenység (21) | 2,4 | 2,1 |
| Szocialista vegyipar összesen: (22) | 100,0 | 100.0 |

Key: (Table 6)

1. The development of chemical industry structure calculated on the basis of social production value (in percentages)

2. Manufacturing branch

3. Fertilizer manufacturing

4. Plant protection agent manufacturing

5. Petrochemical and other organic base material manufacturing (including intermediaries)

6. Synthetic base material manufacturing

7. Synthetics processing industry

8. Chemical fiber manufacturing

9. Inorganic base material manufacturing

10. Industrial gas manufacturing

11. Carbon manufacturing

12. Paint and varnish manufacturing

13. Cosmetic and household chemical manufacturing

14. Synthetic laundry product and detergent manufacturing

15. Industrial ingredient manufacturing

16. Pharmaceutical industry (refined chemicals, veterinary products and feed additives manufacturing included)

17. Rubber industry

18. Photochemical industry

19. Petroleum processing industry

20. City gas manufacturing

21. Other chemical industry activities

22. Total socialist chemical industry

Results are also considerable in the area of technical development. Activities in original pharmaceuticals research have increased in the pharmaceuticals industry. Through the end of 1980, eight new drugs are to be marketed by the industry branch. In the rubber industry, expansion in the family of insert equipped technical tubing, financed from internal resources, has resulted in the manufacture of the so-called jet tube suitable for ocean oil drilling. In the petroleum processing industry, the initiation of MDC [expansion unknown] motor oil manufacturing at DKV with the utilization of the ME-1 additive developed at MAKFI [Hungarian Petroleum and Natural Gas Experimental Institute] and manufactured by Nitrokemia is making significant replacement of capitalist imports possible.

As a result of development, 30.4 percent of chemical industry products have become competitive. The ones listed below, among others, belong in this category: petrochemical products manufactured in modern plants, many products of the pharmaceutical and plant protection agent industries, as well as portion of rubber industry products.

Foreign Trade Relations

The improvement of chemical industry production efficiency, the increasingly implemented export orientation in development and the modernization of the production structure have favorably affected our foreign trade relations.

In both relations, the national economy plan projected the development of export to surpass import. Within this, the goal for chemical industry's non socialist relation was to double the export.

The plan period's export traffic development can be considered to be favorable. Total exports (calculated in comparable 1976 prices; these prices will be used in all of the following evaluations) will probably increase by 200 percent. Within this, socialist and non socialist exports are likely to increase by 163 and 238 percent respectively.

The annual growth rate for non socialist exports is approaching 20 percent. Within the social production of the chemical industry, the proportion of exports--and within this, primarily that on non socialist directed exports--are increasing considerably.

In export development the primary goal is to increase the proportion of profitably manufacturable, more completely processed, less raw material containing products. As in previous plan periods, the most valuable goods in chemical industry exports are continuing to be pharmaceuticals and the rubber industry's traditional products. During the Fifth Five-Year Plan, synthetic materials, plant protection agents, olefins and aromatics have become important export factors.

The value of import traffic increased by 127 percent during the plan period. Of this, ruble accounting and dollar accounting imports increased by 138 and 122 percent respectively.

The ruble relation chemical industry import is based on long range and annual goods exchange agreements made with socialist countries.

The long range cooperative agreements with socialist countries are contributing significantly to continually better assured fulfillment of the national economy's chemical product requirements.

The most important agreements in effect during the plan period are:

--the Soviet-Hungarian olefin agreement, within the framework of which our partner is delivering synthetic and organic basic materials in return for ethylene and propylene;

--the Hungarian-Polish chemistry agreement which satisfies our polyester silk requirements in return for PVC deliveries;

--the Hungarian-Polish fiber agreement, under which they are shipping polyester staples in return for polyacrylnitril fibers and polyamide silk.

Significant trade is also being realized within the framework of rubber industry agreements with the Soviet Union and with Poland. An important accomplishment of the plan period is the finalization of the Hungarian-Soviet agrochemical agreement, under which Soviet chemical industry is delivering fertilizers, organic base materials and intermediaries, in return for plant protection agents. The agreement, in effect from 1977 to 1990, serves the selective development of both countries.

It can be ascertained from export and import taken together that in the socialist relation in 1980 the value of imports is 45 percent (by 5.6 billion forints) higher than the value of exports. This may be considered a favorable development.

The dollar accounting balance is not favorable. In 1980 the probable import value will be nearly 90 percent higher than the export value.

In examining the combined export-import balance, it is apparent that despite a 68 percent increase in the national economy's chemical product requirements, the negative balance of foreign trade is decreasing (by 4.1 billion forints). The negative balance doubled during the previous plan period.

The significant share (2/3) of supplementary chemical imports serves the needs not of chemical industry, but rather those of other national economy branches. Chemical industry utilizes only 26 percent of socialist, and 41 percent of capitalist imports.

It is apparent that during the Fifth Five-Year Plan chemical industry achieved significant results in the areas of modernization built on foreign trade, and in the qualitative and quantative satisfaction of the national economy's chemical needs.

The development achieved is promoting the implementation of all of the national economy goals, as much from the standpoint of national economy balance endeavors, as from those of productivity, modern production structure and effective investment policy.

The development of chemical industry during the Fifth Five-Year Plan contributed to the strengthening of the economic bases of developed socialist society.

## Chemical Industry Tasks During the Sixth Five-Year Plan

### The Necessity for Development

First of all, it is necessary to answer the question, whether it is justified and necessary for our national economy to continue to develop the large scale increase of chemical industry. Does our current situation necessitate a move in some direction other than the current one?

It is clearly apparent that the higher than industry average development of chemical industry during the Sixth Five-Year Plan is continuing to be justified and necessary for the reasons described below.

The Hungarian national economy had earlier already reached the level of economic development wherein chemicalization as an objective requirement is making its own progress.

The mutual effect, observable in developed countries, according to which the given chemical industry development results in the appropriate expansion of chemicalization, is taking place. Conversely, when the level of chemicalization reaches a certain development, the large scale demand for chemical industry products which appears unavoidably compels the rapid development rate of chemical industry.

The phenomena just described explain and demonstrate what is to follow.

It is apparent from the balance of branch relationships that the chemical consumption of certain national economy branches is uniform and is nearly on the identical level.

Since we have not yet reached the world level in the area of modern resolution of chemicalization, the increase in the need for chemical industry products is more rapid than the average industrial development rate.

This conclusion is supported by the calculations to specify the chemical needs of the national eoconomy. Among these, it should be noted that in the past eight years, despite a decrease in the national income's growth rate, the increase rate for chemicals consumption has remained unchanged.

The chemicalization of agriculture, the structural requirements of industry and mechanization have not yet reached the saturation point. Thus our requirements for chemicals continue to increase both specifically and in absolute values. This also follows from the qualitative examination of requirements, according to which industrial consumption is being shifted towards increasingly more valuable products which are continuously ensuring more efficient utilization.

The objective legitimacy of the chemical requirement increase is insufficient in itself to justify our domestic development, since it is theoretically imaginable to fulfill our needs from imports. However,

--on an analysis of world economy data, it is apparent that economic effectiveness of chemicalization is realized fully only when the national economy has a developed chemical industry;

--the increasing needs for chemicals cannot be satisfied from friendly nations currently, since they do not have a surplus of the most important products.

Thus we can increase our imports in this relation only if we also have an export basis as a result of selective development.

One of the conditions of initiating cooperations even with capitalist enterprises is the competitive merchandise basis.

Chemical industry development is also motivated by its own prominent effectiveness within the domestic relation. Next to machine industry, the highest net social income value among industry branches is realized in the chemical industry. In addition to the effectiveness of chemical industry's own development, it must be noted that important accomplishments arise in other national economy branches through the utilization of chemical products. Thus our chemical industry development is motivated towards economic effectiveness, among whose instruments are strucutral materials produced by chemical industry, biologically active materials which even in small amounts and values assure great effect, industrial ingredients, and the preparation and utilization of other chemical products. Thus, the development of chemical industry today is more opportune than ever.

## The Chief Direction and Technical Policy of Development

The fundamental principles, goals and priorities of chemical industry development during the Sixth Five-Year Plan were composed as follows by the October 20, 1977 resolution of MSZMP KB [Central Committee of the Hungarian Socialist Workers Party]:

"In the chemical industry a development direction must be formulated which would mean balanced development between manufacturing branches which are ensuring the country's material supplies and the manufacturing branches which produce highly finished chemical industry product, or rather, intermediaries. Chemical industry must continue to be developed selectively, and on the basis of international socialist division of labor."

The necessity of chemical industry development can be concluded from the directive principles of the 12th MSZMP Congress, directly through the development of selected industry branches, and indirectly through the tasks directed toward the enhancement of the effectiveness of national economy chemicalization.

The chief directions of chemical industry development in the document mentioned above are the following:

--the higher than average export oriented development of the pharmaceuticals industry and plant protection agent manufacturing;

--the continued development of the in-progress petrochemical program primarily through the expansion of the range, with the purpose of fulfilling our obligations in international cooperation and in reducing capitalist imports;

--the export oriented development of several organic base materials with diverse processing properties, and the establishment of several families of intermediaries on their basis;

--the development of the rubber industry's competitive products in order to increase exports;

--the development of detergent manufacturing, synthetics processing and the paint and varnish industry in order to approximate domestic requirements as well as to replace and supplant imports;

--the improvement of the production structure of several other processing branches (photo industry, ingredient manufacturing, carbon production) through the development of the manufacturing level of modern products, the introduction of new products and through ceasing the manufacture of unprofitable products which can no longer be modernized;

--the technological integration of petroleum processing and the broadening and diversification of its range.

The development conceptions must be adjusted to the following general methodological directive principles:

--as opportunities arise, a small number of new production and development directions must be created, technologically equivalent to what our competitors have in operation. There are export oriented possibilities in the petrochemical industry, in the manufacturing of organic chemical industry base materials and intermediaries--with goal of replacing imports--in the pharmaceutical industry and in the manufacture of plant protection agents;

--we must endeavor, with the manufacture of a number of widely utilizable chemical industry base materials, to make a multiple branching processing materials flow possible. It would be appropriate to link petrochemical development with the implementation of intermediary manufacturing necessary for the development of the pharmaceuticals industry and plant protection agent production.

--Outmoded, oldfashioned production capacities (certain inorganic chemical industry products, cellulose based synthetic fibers, polyamide staples), small capacity organic chemical industry base materials (caprolactam), and the production of outmoded chemical processing industry products (such as, for example, certain carbon products, cosmetics and chemical household products)--since their manufacturing cannot be done economically--must be eliminated.

The decreasing proportion of extensive development possibilities is bringing intensive, efficiency enhancing development methods to the forefront.

One of the fundamental methods of increasing efficiency is intensification, which had already assumed a significant role during the Fifth Five-Year Plan. Because of its technological character, the opportunities for intensification are favorable in the chemical industry. Greater monetary instruments and intellectual capacities must be utilized to better exploit the existing fixed assets, in order to produce more or better quality and more valuable products with the same equipment. Not only are our opportunities for intensification favorable, but our resources must also be deemed favorable through the goal oriented utilization of the work of our many research laboratories and institutes.

The other fundamental method of increasing effectiveness is the employment of modern organizational methods to disclose and mobilize internal enterprise reserves. Continuous organizational effort msut extend to all enterprise activity. Many enterprises (for example, the pharmaceutical industry) are developing effectiveness increasing organizational solutions through the participation of foreign management institutes. Significant results are expected from the introduction of modern management methods through

--the effective operation of investments (or rather, existing fixed assets) (appropriate arrangement of plants and machinery, ensuring the coordination of basic and auxiliary activities, etc.);

--increasing the effectiveness of maintenance work;

--better exploitation of the working hours base (reduction of time losses, elevation of the level of maintenance work);

--development and implementation of directive and information systems.

This goal is making the implementation of a complex system oriented organization which encompasses all enterprises and which ensures coordinated development necessary. We are endeavoring to do this through the introduction and dissemination of process analysis

Process analysis is the sceintific, technical and economic analysis of planned or operational technologies for the purpose of perfecting procedures. What is new in the method is that the relationships are not determined and examined statistically, but through the interrelationships of chemistry, chemical technology, economics and marketing. This is why this method is considered more successful than previous methods, and why the measures for their general introduction have been decided.

The utilization of the process analysis method requires the preparation and further training of specialists in enterprises and collectives. For this we can rely on international experiences.

Increasing labor productivity, as the fundamental method of enhancing effectiveness, also has prominent significance during the Sixth Five-Year Plan. We can continue to expect a decrease in the number of those employed in the chemical industry. Effecitve organizational work is making it possible for enterprises to complete the tasks of the 10 year productivity development program ahead of schedule, that is, by the end of the plan period they will surpass the productivity levels of the most developed in 1975.

## Development Tasks of the Manufacturing Branches

During the Sixth Five-Year Plan, the already operational and the newly beginning central development programs (Petrochemical KFP [Central Devleopment Programs], or rather, pharmaceutical, plant protection agent and intermediary manufacturing KFP's) must continue to be treated as technical development priorities (as chief directions), since these contain within themselves activities which affect the whole national economy and greatly influence the produciton structure.

Considerable intellectual basis, which is suitable for product improvement, for enhancing the range, for range development and for formation of innovative range processes from internal resources, has developed from current petrochemical developments.

Within petrochemical developments during the Sixth Five-Year Plan the processing of domestic ethylene and propylene and imported ethylene occupies the primary position--within the scope of the Hungarian-Soviet olefin agreement's further extension. The establishment of one high and one low pressure polyethylene plant, as well as a second polypropylene facotry for the exploitation of these products would be appropriate. The creation of the first two would carry over into the Seventh Five-Year Plan. This development is to result in large scale import savings. Capacity increases, intensification and restructuring for new product manufacturing in existing plants continue to be important goals.

Among domestic research development tasks, the exploitation of the growing petrochemical production's by-product flow has had and will have an important role in the future. Thus, for example, the processing of piroliz oil [pirolizisolaj]] into a more valuable national economy product must be resolved during the Sixth Five-Year Plan. In aromatics production, the possibilities resulting from intensification must be exploited through production with the modern two metal catalysis.

In synthetics and base materials manufacturing, the development continues to be selective and towards the already mastered technologies (high pressure polyethylene, polypropylene).

Maintaining the quality level and widening the product selection are important tasks in PVC and polyethylene manufacturing.

It would be expedient to increase the manufacturing of medium volume synthetics (phenoplasts, aminoplasts, polyurethanes) to the domestic requirement level, if possible through purchasing licenses and expertise.

For low volume synthetics, the development ought to be through the framework of international cooperation and specialization.

In its selective development, synthetic fiber manufacturing, again during the Sixth Five-Year Plan, is to aim for ever greater quantitative fulfillment of textile industry needs through domestic production and it is to ensure appropriate export merchandise basis for the exchange of fibers.

The development continues to be directed towards the foremost level representative PAN fiber manufacturing polyacrylnitril, within the level of available investment instruments and possibilities. This development is made necessary primarily by the recently signed extension and broadening of the Polish-Hungarian chemical fiber exchange. In addition to PAN fiber development, it would be expedient to increase polypropylene manufacturing to the amount sufficient for domestic requirements.

The development of pharmaceuticals industry, plant protection agent and intermediary manufacturing within the framework of the central development program which coordinates the three manufacturing branches, is foreign trade oriented to a degree surpassing the industrial, or rather, chemical industry average.

The program is to be directed towards large scale improvement in competitiveness and production structure to be characterized by the increase in the proportion of original and licensed preparations. The number of products is to be reduced, but the proportion of dollar accounting export products is to be increased.

The production of plant protection agents is to significantly increase. Nearly a half of these is to be exported, largely to ruble accounting markets.

The projected dynamic development in the pharmaceuticals industry and plant protection agent manufacturing is necessitating the establishment of intermediary manufacturing, wherein on the basis of selective development principles only the development of a relatively small number of products a indicated, primarily for the satisfaction of domestic needs, but also for the creation of an export base through the establishment of profitable air plants (phosgene and phosgene derivatives, aliphatic amines, monochlor-ace acid, ethylmercaptan).

The fundamental condition of achieving the set goals--in addition to improving the rather important investment and world market evaluation efficiency--is the heightening of the effectiveness and success of technical development and research. This is to be achieved to a greater extent through intensive, and to a lesser extent through extensive development. In addition, the sizable purchases of foreign licenses and expertise are to be expected.

In pharmaceuticals industry research, research directed towards the production of original preparations and towards the development of manufacturing are becoming increasingly the focus of attention. Original research, as a result of which we are to have original products by the end of the plan period, is receiving an increasingly greater role in plant protection agent manufacturing. Here and in intermediary production also, manufacturing development research is to have great significance. While there is no need for large scale independent research in the field of intermediaries, a research staff which is able to evaluate and adapt foreign technology which can be purchased, in addition to performing manufacturing development research, must be available.

In all three manufacturing branches, the intensive fostering of research and development activities must receive prominence, especially because difficulties in labor supply are probable. Especially great stress must be placed on the background development of biological research for pharmaceuticals and plant protection agents, in order that our original preparations be improved and utilized with as thorough biological foundation as possible.

The synthetics processing industry should be developed to the extent that is satisfied domestic requirements (counterbalance imports with exports). Thus, the development goal is to significantly reduce current capitalist imports, while providing a small amount of exports. The next tasks in the industry branch's technical development are to increase mass production and to develop automatization. The reprocessing of thermoplastic synthetics is also an important national economy goal. New synthetics processing methods must be adapted, the current ones must be developed and, at the same time, the resolution of instrument supply must be promoted.

In the fertilizer industry, there is no need for capacity development for manufacturing nitrogen fertilizers, since agriculture's extra fertilizer requirements are solidly met from imports form the Soviet Union through the framework of a broadened agrochemical agreement.

The requirements for potassium salts are wholly satisfied from imports, primarily from the Soviet Union.

It would be advisable to begin the transformation of outdated superphosphate plants to TSP [expansion unknown] manufacturing through the implementation of the necessary phosphoric acid and heat granulation plants.

It would be practical to increase product selection of specialized fertilizers (those with liquid trace elements) in harmony with agricultural requirements.

In inorganic chemical industry, it is advisable to increase production of the currently manufactured products, primarily of chlorine and solid caustic lye to the maximum of domestic requirements through retooling and intensification of existing capacities (DSA [expansion unknown] anodes). At the same time, obsolete plants (caustic lye, sulphuric acid), depending upon the ability to meet the demands, are to be shut down. We must continue to acquire products such as, for example, the following imports: sodium carbonate, titanium dioxide, boron derivatives and inorganic salts (barium salts, sodium sulfate).

In order to resolve the satisfaction of the sulphuric acid requirement--depending on the development of phosphorus fertilizers--the sulphur import and the possibilities for constructing a new sulphuric acid plant are to be examined.

During the Sixth Five-Year Plan, the development of the rubber industry must be directed towards competitive strategic products. Its focal point is the significant increase in steel radial tire production. The second chief development direction is in the manufacture of flexible pipes, conduits (tubing) and belts. Significant results have been achieved in this production branch thus far. As a result of the planned developments, rubber industry can acquire important technical and market positions.

The goal of the paint and varnish industry should be the reduction of capitalist imports as much as possible. The production capacities of the two enterprises concerned (Budalakk and TVK) must be increased through development.

In the development of the chemical industry's other manufacturing branches--on the basis of the study results related to economic structure development--the endeavors must be toward the following:

--cosmetic and household chemical industries are to be developed to the extent of domestic requirements, along with possible reduction in the selection spectrum and the exchange of goods with CEMA;

--the current export oriented development in the photo industry is to be maintained;

--we have eliminated the outdated carbon technology (chemically active charcoal), while the less outdated (carbon, powder metallurgy products) are to be modernized in the future;

--the manufacturing of light industry ingredients ought to be developed with the purpose of supplementing capitalist imports to an increasing degree;

--in the areas of synthetics industry ingredient manufacturing and the manufacturing of oil additives, several duplicating developments can take place, depending upon the work of our domestic research institutes. These, however, cannot result in significant changes in structure.

In the petroleum processing industry, according to the energy policy conception, we are not expecting to construct new plants in the area of primary processing capacities (AV [State enterprise] plants).

The chief conceptual goal of technical development is the expansion of secondary processing procedures which should be implemented through the establishment of the new reforming plant, and through existing intensification. It would also be worthwhile to begin, or to prepare the investment of the catalytic cracking plant.

The diversification of petroleum processing industry from enterprise resources must be continued, interrelating it into the manufacturing of organic chemical industry base products and intermediaries.

Nineteen-eighty is the year the Fifth Five-Year Plan is closed out and also the year for the final formulation of the Sixth Five-Year Plan. In order that the transition be smooth, it is necessary that at the same time as the plan conception is finalized, we prepare ourselves for executing it.

I am sure that the results of chemical industry's developments thus far have prepared a certain foundation for the implementation of our coming tasks.

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# MANAGEMENT SYSTEM IN FOREIGN TRADE ENTERPRISES DISCUSSED

Warsaw HANDEL ZAGRANICZNY in Polish No 12, 1979 pp 8-10

[Article by Marek Gadomski]

[Text] In the functioning of each enterprise, including foreign trade enterprises, an essential role is played by the entrepreneur approach. The principles of the entrepreneur approach to economic units in industry form a convenient starting point for consideration of this subject.

Analyzing the mechanism of the management of industrial enterprises, Professor B. Glinski expressed the following opinion regarding entrepreneur functions of economic units(1): "In the traditional formulation the basic enterpreneur functions include: selecting the goals of economic action, obtaining the resources necessary to realize the goals, organizing economic activity and assuring the sales of products and services.

These functions cover the basic tasks of each economic unit but are not limited to the most characteristic features of contemporary entreprenet approaches.

B. Glinski assumes the following to be the basic principles of the entrepreneur approach(2):

1. Whereas the traditional concepts of entrepreneurship concentrate attention on the solution of problems, contemporary concepts emphasize taking advantage of opportunities (new markets, possibilities of introducing an improved product). Because the solution of problems very often means a return to equilibrium, the temporary conditions of which could undergo change.

2. Allocation of resources must be used to take advantage of occurring opportunities. (For this reason, among others, in the evaluation of capitalistic enterprises much importance is attributed to the liquidity of their financial resources.

3. A contemporary enterprise functions under conditions of increasing competition. Even if there is no sharp domestic competition, it is sufficient to go out into the foreign market to do business with it. Besides, the competition of substitutes, competition for the consumer and the competition of goods from abroad are growing in the domestic market. Under such conditions an enterprise can be something of a success only when it knows how to assure its product a leading position... It must be recalled, however, that under contemporary conditions of the scientific and technical revolution each leading position is a temporary occurrence.

The foregoing principles of the entrepreneur approach were formulated in relation to a production enterprise. It can readily be seen, however, that they relate (to at least an equal degree) to foreign trade enterprise. The element of taking advantage of an opportunity, characteristic of the contemporary entrepreneur approach), plays an especially essential role in foreign trade. Besides the mentioned question of capturing new markets and the introduction of new products on the market, a number of others can also be added in which the entrepreneur functions of foreign trade enterprises play a large role even if the question of the moment of making a purchase or sale, selection of the currency for payment and the conditions of payment and delivery, the size of transactions, the sales channels used, the organization of its own sales network, the coordination of import and export transactions and a number of other things known everywhere in our foreign trade enterprises. Many of the opportunities that occur are not utilized by our foreign trade apparatus. The basic reasons for this situation must undoubtedly be sought in the system of management of the national economy, in the internal and external conditions forming that system or the current policy formed by the urgent tasks and the possibilities of their realization, among other things. Among those reasons, systems solutions, it seems, have become the most important in the sphere of management of foreign trade.

In the present article we will limit ourselves to touching upon only some solutions in the management of foreign trade enterprises, namely solutions determining the sphere of independence of foreign trade enterprises in adopting economic decisions, and in particular the area of their operative action in the case of the appearance of opportunities, that is, such solutions as:

--create the possibility of influencing the producers of export goods in the area of the assortment structure of production, use characteristics, quality, the rhythmicity of deliveries, etc.;

--create a definite motivational system for foreign trade enterprise personnel inclining (or not) to search for opportunities and utilize them, which in many cases involves the assumption of risks.

The question of the region of independence of economic organization in the adoption of economic decisions involves an obligatory model of management. When the activity of foreign trade enterprises is controlled at the central level (as in other economic spheres) the co-existence of two types of control appears: by directive and by parameter. Enlargement of the area of occurrence of parametric elements above all through utilization of economic and financial systems that define the rules or principles of action of enterprises of enterprises is identified with increase of the area of independence of the enterprises in making economic decisions. This view flows from analysis of theoretical models of management. At the same time, in our economic practice we observe a situation in which the mechanism of management is characterized by a still greater number of elements of parametric management, but the freedom of decision of enterprises is not really expanded. The sphere of parametric management of foreign trade enterprises has been enlarged through the introduction into several foreign trade enterprises of a system of the WOG (Large Economic Organizations) type and through the universal application of some solutions developed in the course of the WOG reform). Therefore one would expect growth of the independence of enterprises in the conducting of economic activity, in particular growth of the sphere of freedom in making decisions regarding methods of performing tasks defined in the plans and in other solutions, for example organization of a sales network abroad, the utilization of resources allocated or saved by an enterprise, flexible operation of the system of economic stimulation within the framework of the available resources, the creation and utilization of funds created on the basis of the operative economic and financial system.

Observation of the functioning of foreign trade enterprises suggests, however, that the scope of freedom in adopting operational decisions is smaller than would be expected on the basis of the system changes introduced in recent years. It appears that increase of the scope of utilization of economic and financial instruments and the parameters of economic mathematics do not automatically assure greater independence of the enterprise.

Decisive with respect to the initiation of the parametric method of management of enterprises is not only the fact of introduction of parameters and rules of action as instruments of management, but also the method of their functioning, above all the number of parameters and the frequency their changes or the frequency of changes of principles and rules of action of the system.

Introduction of an excessive number of parameters can lead to greater centralization of the management system. The same results are caused by too large a frequency of changes of the values of parameters and operating rules. It appears that variability is one of the principal weakness of the mechanism of management of foreign trade enterprises.

Especially troublesome for enterprises are variations of the parameters or rules that occur in the course of fulfillment of planned tasks. Those changes in many cases are also obligatory in relation to the activity preceding the moment of their introduction(3).

Another element (besides the variability of rules and parameters) affecting unfavorably the functioning of the mechanism of enterprise management is the introduction, together with the parameters, of solutions that have the task of weakening or completely centralizing the action of the parameters. This complicates the system and increases the problems absorbed by the management personnel, problems which do not contribute in a real way to correction of the functioning of enterprises.

The variability of the rules and parameters and the introduction of solutions weakening their reaction have the result that their role in enterprise management is small, smaller than expected for that enterprise and at the same time smaller than could be achieved within the framework of the used model of management.

Variability of the rules introduces uncertainty in the behavior of management personnel and limits the scope of actions relating to long-range solutions. Management personnel concentrate their attention on decisions connected with current operations. The variability of the rules gives rise to the view that individual system solutions have a temporary character. Those solutions often are made reluctantly and implemented with the conviction that they are changed or at least "corrected" even before their complete implementation. The feeling of "temporariness," which has its justification in the variation of rules of action, is a restraint on the formation of the "entrepreneur" principles in cases where the enterprise deals with actions with a long-range character, giving an effect in future periods. Regardless of the element of variability, operating rules themselves contain elements limiting the possibilities of flexible action, necessary from the point of view of taking advantage of an opportunity.

Especially strongly felt in the enterprise is "pigeon-holing" of allocated resources and the correction of their dimensions in the course of the year. Likewise the creation of complicated principles of use of allocated resources but at any rate resources developed by the enterprise is an element stiffening the flexibility of action of the enterprise and by the same token making it difficult to take advantage of opportunities that arise.

The problem of the providing of foreign trade enterprises with working capital (the allocation of resources or the construction of rules for their creation) is connected with another element of the entrepreneur approach of a foreign trade enterprise occurring in foreign trade enterprise collaboration with industry. The entrepreneur approach must be based on inspiration and stimulation by the foreign trade enterprise of the action of productive enterprises that would contribute to the realization of the tasks of foreign trade. It appears that usually there are no resources with which foreign trade enterprises could efficiently perform those inspirational and stimulating functions, regardless of their organizational subordination. In that situation it would be advisable to give consideration to the proposition of the formation, on experimental principles, of economic units the creative activity of which would be controlled by the foreign trade apparatus (foreign trade enterprise).

Regardless of the possibility of flexible action determined by the rules and parameters and their influence on the formation of the entrepreneur approach, there exists the problem of stimulating such an approach by the construction and the method of functioning of the motivating system in a foreign trade enterprise. That problem has two dimensions, namely:

a) connection of the wage and bonus fund with the results of the activity of enterprises;

b) taking into account in the evaluation of individual workers (used among others in salary and personnel decisions) the individual contributions of those workers in realizing tasks of the enterprise and of initiative and enterprise in action.

The question of the method of connecting the wage and bonus funds with the results of the activity of the foreign trade enterprises can stimulate the formation of the entrepreneur approach of all the work force and especially the management personnel. This question is especially difficult to solve in connection with the specifics of the operations of a foreign trade enterprise. The introduction of indirect methods of enterprise management is accompanied by dependence of the salary funds on synthetic measures in evaluating their activity. Simultaneous expansion of the range of economic decision-making must be accompanied by growth of responsibility. Simultaneously realized in that way are the postulates: reduction of the number of evaluation indicators and of its connection with the synthetic measure, the formation of which reflects the entirety of the enterprise activity and the postulate of increased responsibility of the enterprise for the results of its activity together with expansion of the scope of its activity.

In foreign trade the problem is especially difficult in view of the great influence of independent elements (for example, those involving economic competition, punctuality and quality of producers' domestic deliveries of export commodities, the commercial policy of partners, etc.) on the results of activity. This makes it difficult to separate the influence of foreign trade on the attained results and at the same time makes it difficult to establish responsibility (it is difficult, for example, to blame a foreign trade enterprise of limited responsibility for the worsening of results on account of a recession).

The great influence of the external conditions of the foreign trade enterprise questions (that is, of the conditions prevailing in foreign markets) causes, especially in areas in which those conditions are unstable, great variability of the basic economic values (such as profit, income and turnover) and variability of the economic relations. Thus, for example, the dependence of the motivational system, and above all of the wage fund of foreign trade enterprises on the amount of income (regardless of differences in the definition of that category in different foreign trade enterprises) which principles of the WOG type introduced at one time) had the result that the values of that function underwent along with other fluctuations of income a fluctuation much larger than desirable from the point of view of the wage policy. Among other things this can explain the fact that solutions introduced on an initiating basis in some foreign trade enterprises have not become widespread, and work on the proper design of the mechanism of connection of the wage fund with certain measures for evaluating the activity of foreign trade enterprises (or set of measures) have so far not given completely satisfactory results. How in such a situation is the valid postulate of increasing the scope of authority of foreign trade enterprises to be realized when there are difficulties in obtaining constancy of the operating parameters and rules, variability of the operating conditions and difficulties in estimating the influence of undesirable events of the enterprise on its financial outcome?

It appears that the answer to this question requires distinguishing the reasons for frequent accomplishment of changes of the operating parameters and rules (among other things, changes of individual elements of the economic financial system) on elements necessary from the point of view of realization of the basic goals of economic policy, which requires the introduction of changes and corrections into the state plans mainly in the form of change of tasks or elements arising from the functioning of rules and parameters in a method necessary with the expectations of the central level.

The influence of the first group of factors cannot be eliminated. One can include in that group above all change of tasks in export and import operations arising from corrections of the National Socio-Economic Plan made under the influence of current changes of the conditions for fulfillment of the plan, the need to assure the provision of the domestic market with certain products, etc. The need to introduce that type of changes in enterprises very often is well understood and is unquestioned.

The changes caused by another group of factors give rise to much more doubt, however. One can include in that group above all changes relating to providing enterprises with current assets, changes of the principles of the formation and use of funds, changes of obligatory indicators and economic relations, excessive detailedness in the definition of the goals of the method of using allocating resources, of the possibility of flexible manipulation of material stimuli by the management of a foreign trade enterprise. It appears that the variability of the working rules caused by that group of factors can be considerably limited. However, this requires extensive consideration, during construction of the economic and financial system and other operating rules, of the specifics of the activity of foreign trade enterprises, and thus renunciation of attempts to manage a foreign trade enterprise in a manner similar to the management of an industrial enterprise.

In connection with that the following would be appropriate:

--taking as the basis of the estimate of the activity of a foreign trade enterprise or as the basis for the creation of a wage fund, categories, the maximization of which is the main goal of activity of the foreign trade enterprise (this theme, forming the basic link of an economic and financial system of the WOG type, requires separate discussion, and therefore will not be analyzed in detail here);

--the creation of rules for wage fund formation which could function for a long time during great variability of the size of the measure would permit forming the size of the wage fund within allowable limits through a universal wage policy in the country. Such a situation may be achieved by at least two methods, that is, through the dependence of only a part of the wage fund on the evaluation measure of the activity of foreign trade enterprises or by taking a relatively small value of the parameter connecting the wage fund with changes of the value of the measure;

--creation of mechanisms of operating conditions variability, such as a foreing exchange fund for small emergency purchases, a very flexible credit system, great freedom in the organization of a trade network abroad, etc.;

--creation by the management of foreign trade enterprises of a very flexible operation of economic stimuli;

--different outlooks on the question of costs of the activity of foreign trade enterprises, among other things, perception of the fact that in foreign trade small outlays can make it possible to obtain relatively large financial advantages by obtaining more advantageous prices, delivery conditions, terms of payment, etc.

It should be recalled that the relation of the reduced costs and obtained incomes is different in foreign trade from that in industry. In connection with that the limitation of certain cost positions by absolute quotas would be necessary to replace their formation in a definite relation to tasks and effects of activity (which causes, however, certain difficulties for the central level, which is forced to balance the financial on a global scale).

The implementation of the above postulates would give better conditions for the creation of operating rules and a group of parameters having a very general character and not containing too particular assuring directives, limitations and instructions. They would permit a foreign trade enterprise to more freely take more resources and methods of realizing planned tasks, and on the other hand would guarantee to a greater degree the "accommodation" of a foreign trade enterprise within the frameworks desirable or allowable from the point of view of the central level. The real and not the apparent functioning of the rules can be achieved only when they are obtained without great changes in the course of at least periods of several years, and besides that will be observed universally.

The created rules must be consistently observed by all levels of the economy, by all participants in exchanges from abroad. For that reason it would be advisable to renounce the introduction of such parameters and rules for which there are no conditions for their complete observance by all levels.

## FOOTNOTES

1. Cf. B. Glinski. System funkjonowania gospodarki. Logika zmian (System of Economic Functioning. Logic of Exchanges). Warsaw, 1977, p 88.

2. Idem.

3. This problem, universally felt by the management of foreign trade enterprises, was touched upon by A. Jung, Z. Kwiczak and M. Ufnal in the article, "Management system and the functioning of foreign trade enterprises," in HANDEL ZAGRANICZNY, No 17, 1977, rightly postulating... that primary units transmit correspondingly early, before the period in which the tasks are to be in force, the resources, relations, standards, indicators and other parameters, that is, that the rules of the game be known in advance.

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# AIR TRANSPORT IN FOREIGN TRADE NOTED

Warsaw HANDEL ZAGRANICZNY in Polish No 12, 1979 pp 37-40

[Article by Krzysztof Rutkowski]

[Text] Despite dynamic growth, air transport is a branch whose part in the service of international commerce is still very small. This statement is confirmed by the percentage rates of air transport participation in the service of international commerce of the majority of European countries and the U.S., as shown in Table 1. The highest percentages refer to highly developed capitalist countries, and in their case it may be ascertained that the role of air transport is much greater in export than in the import of freight.* Against the background of these other countries, the marginal role of air transport in Polish foreign commerce stands out. The rates shown with reference to Poland were, in 1977, the lowest in the area of turnover as well as of exports and imports among the nations investigated.

In 1970-1978, rail transport and ocean shipping, which carried approximately 90 percent of the freight, played a basic role in Polish foreign trade. The remaining branches of transport, especially air transport, played a relatively small role in this service (see Table 2). In none of the years examined did the participation of air transport in turnover of exports and imports exceed 0.01 percent of their quantity by weight. Following a period of dynamic growth in the quantity of Polish foreign trade commodities transported by air in the years 1970-1974, a regression occurred in the ensuing years, especially in 1978 (see Table 3).

Among Polish foreign trade enterprises the principal uses of air transport are: HORTEX-POLCOOP and TEXTILIMPEX as well as UNITRA, CIECH, METALEXPORT, METRONEX and ANIMEX (see Table 4)

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*See K. Rutkowski, "Air Transport Used in International Commerce of Developed Capitalist Nations," HANDEL ZAGRANICZNY, No 10, 1979.

Table 1. Participation of Air Transport in Turnover of International Commerce of Selected European Nations and the U.S. by Weight (w percent)

| Kraj (1) | (2) 1970 | (3) | | (2) 1977 | (3) | |
|---|---|---|---|---|---|---|
| | obroty | eksport | import | obroty | eksport | import |
| Austria | 0,03 | 0,03 | 0,02 | 0,04 | 0,06 | 0,03 |
| (4) Belgia - Luksemburg | 0,07 | 0,18 | 0,02 | 0,06 | 0,06 | 0,03 |
| Bułgaria | — | — | — | 0,07 | 0,27 | 0,01 |
| (5) Dania | 0,04 | 0,06 | 0,03 | 0,05 | 0,09 | 0,03 |
| Finlandia | 0,02 | 0,02 | 0,02 | 0,03 | 0,03 | 0,03 |
| Francja (6) | 0,05 | 0,08 | 0,03 | 0,09 | 0,17 | 0,06 |
| (7) Grecja | 0,13 | 0,22 | 0,08 | 0,08 | 0,11 | 0,07 |
| Hiszpania (8) | 0,06 | 0,13 | 0,03 | 0,11 | 0,27 | 0,03 |
| (9) Holandia | 0,02 | 0,02 | 0,02 | 0,04 | 0,06 | 0,03 |
| Islandia (10) | 0,08 | 0,10 | 0,06 | 0,17 | 0,20 | 0,16 |
| Jugosławia | 0,02 | 0,03 | 0,02 | 0,06 | 0,13 | 0,01 |
| (11) Norwegia | 0,06 | 0,03 | 0,08 | 0,03 | 0,01 | 0,04 |
| Polska | 0,01 | 0,01 | 0,01 | 0,01 | 0,004 | 0,01 |
| Portugalia | 0,13 | 0,19 | 0,10 | 0,12 | 0,30 | 0,06 |
| (12) RFN | 0,05 | 0,10 | 0,03 | 0,08 | 0,13 | 0,06 |
| Szwajcaria (13) | 0,13 | 0,72 | 0,08 | 0,19 | 0,59 | 0,12 |
| (14) Szwecja | 0,03 | 0,02 | 0,05 | 0,04 | 0,03 | 0,05 |
| W. Brytania (15) | 0,18 | 0,46 | 0,10 | 0,21 | 0,43 | 0,11 |
| (16) Węgry | 0,02 | 0,06 | 0,01 | 0,03 | 0,06 | 0,01 |
| USA | — | — | — | 0,16 | 0,24 | 0,05 |

Source: Author's study and calculations based on the Annual Bulletin of Transport Statistics for Europe and UNO, New York, 1978.

Key:

| | | | |
|---|---|---|---|
| 1) | Nation | 9) | Holland |
| 2) | Turnover | 10) | Iceland |
| 3) | Export | 11) | Norway |
| 4) | Belgium-Luxemburg | 12) | Federal Republic of Germany |
| 5) | Denmark | 13) | Switzerland |
| 6) | France | 14) | Sweden |
| 7) | Greece | 15) | Great Britain |
| 8) | Spain | 16) | Hungary |

Table 2. Participation of Individual Transportation Branches in the Transport of Polish Foreign Trade Cargo in 1970–1978 (by weight)

| (1) Gałąź transportu / Lata (2) | (3) Tr. kolejowy | | | (4) Tr. morski | | | (5) Tr. rurociągowy | | | (6) Żegl. śródląd. | | | (7) Tr. samochodowy | | | (8) Tr. lotniczy | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | O | E | I | O | E | I | O | E | I | O | E | I | O | E | I | O | E | I |
| 1970 | 56,1 | 51,0 | 62,5 | 35,8 | 48,0 | 20,8 | 7,4 | — | 16,4 | 0,5 | 0,8 | 0,1 | 0,2 | 0,2 | 0,2 | 0,01 | 0,01 | 0,01 |
| 1971 | 56,4 | 52,4 | 60,2 | 34,9 | 46,5 | 21,5 | 8,1 | — | 17,5 | 0,3 | 0,5 | 0,4 | 0,3 | 0,6 | 0,4 | 0,01 | 0,01 | 0,01 |
| 1972 | 54,0 | 53,6 | 55,9 | 35,8 | 46,1 | 23,9 | 9,1 | — | 19,6 | 0,6 | 0,8 | 0,3 | 0,5 | 0,7 | 0,3 | 0,01 | 0,00 | 0,01 |
| 1973 | 53,2 | 54,2 | 52,6 | 36,7 | 45,6 | 26,6 | 9,1 | — | 19,6 | 0,7 | 0,9 | 0,5 | 0,3 | 0,3 | 0,3 | 0,01 | 0,01 | 0,01 |
| 1974 | 51,0 | 49,1 | 53,3 | 38,7 | 50,2 | 27,6 | 8,3 | — | 17,8 | 0,9 | 1,2 | 0,5 | 0,4 | 0,3 | 0,5 | 0,01 | 0,01 | 0,01 |
| 1975 | 50,1 | 48,8 | 49,3 | 39,9 | 49,3 | 30,5 | 8,8 | — | 17,7 | 0,7 | 1,0 | 0,4 | 0,5 | 0,6 | 0,5 | 0,01 | 0,01 | 0,01 |
| 1976 | 46,1 | 44,8 | 47,4 | 43,8 | 53,8 | 32,7 | 9,9 | — | 19,3 | 0,5 | 1,0 | 0,1 | 0,5 | 0,5 | 0,5 | 0,01 | 0,01 | 0,01 |
| 1977 | 45,6 | 44,3 | 46,9 | 43,3 | 54,3 | 32,1 | 10,2 | — | 20,3 | 0,6 | 1,1 | 0,0 | 0,5 | 0,5 | 0,6 | 0,01 | 0,01 | 0,01 |
| 1978 | 44,0 | 44,0 | 44,1 | 45,2 | 54,3 | 36,3 | 9,6 | — | 19,0 | 0,6 | 1,1 | 0,1 | 0,6 | 0,6 | 0,5 | 0,01 | 0,01 | 0,01 |

0 - turnover E - export I - import

Source: Author's study and calculations based on data of the Department of Shipping and Transport of the Ministry of Foreign Trade and Marine Economy.

Key:
1) Transport branch
2) Years
3) Rail transport
4) Sea transport
5) Pipeline transport
6) Inland navigation
7) Automotive transport
8) Air transport

Table 3. Air Transport of Polish Foreign Trade Cargo 1970–1978

| Lata (3) | Obroty (1) | | | Eksport (2) | | | Import | | |
|---|---|---|---|---|---|---|---|---|---|
| | tys. ton (4) | 1970 = 100 | rok poprz. = 100 (5) | tys. ton (4) | 1970 = 100 | rok poprz. = 100 (5) | tys. ton (4) | 1970 = 100 | rok poprz. = 100 (5) |
| 1970 | 4,8 | 100,0 | — | 2,8 | 100,0 | — | 2,0 | 100,0 | — |
| 1971 | 6,7 | 139,6 | 139,6 | 4,1 | 146,4 | 146,4 | 2,6 | 130,0 | 130,0 |
| 1972 | 7,3 | 152,1 | 109,0 | 2,0 | 71,4 | 48,8 | 5,3 | 265,0 | 203,8 |
| 1973 | 8,7 | 181,3 | 119,2 | 3,3 | 117,9 | 160,0 | 5,5 | 275,0 | 103,8 |
| 1974 | 12,4 | 258,3 | 142,5 | 6,0 | 212,9 | 212,5 | 5,6 | 280,0 | 101,8 |
| 1975 | 12,3 | 256,3 | 99,2 | 6,0 | 214,3 | 100,2 | 6,3 | 315,0 | 112,5 |
| 1976 | 12,1 | 254,3 | 99,2 | 6,2 | 220,3 | 111,7 | 5,5 | 275,0 | 87,3 |
| 1977 | 11,0 | 230,0 | 94,6 | 6,8 | 242,9 | 101,5 | 5,2 | 260,0 | 94,5 |
| 1978 | 10,3 | 215,0 | 90,8 | 5,1 | 182,1 | 75,0 | 5,7 | 285,0 | 109,6 |

Source: Author's study and calculations based on data of the Department of Shipping and Transport of the Ministry of Foreign Trade and Maritime Economy.

Key:
1) Turnover
2) Export
3) Years
4) Tons (thousands)
5) Preceding year

Table 4. Foreign Trade Enterprises Which Are Principal Users of Air Transport

| (1) Poz. | (2) Przedsiębiorstwo handlu zagranicznego | (3) Obroty |  | (2) Przedsiębiorstwo handlu zagranicznego | (4) Eksport |  | (2) Przedsiębiorstwo handlu zagranicznego | Import |  |
|---|---|---|---|---|---|---|---|---|---|
|  |  | t | % |  | t | % |  | t | % |
| 1 | Hortex-Polcomp | 2384,0 | 22,0 | Textilimpex | 1737,3 | 22,6 | Hortex-Polcomp | 1422,2 | 21,6 |
| 2 | Textilimpex | 1911,0 | 17,7 | Hortex-Polcomp | 1148,8 | 15,0 | Ciech | 861,7 | 12,7 |
| 3 | Universal | 899,3 | 8,3 | Animex | 622,6 | 8,1 | Universal | 770,6 | 10,1 |
| 4 | Ciech | 782,2 | 7,3 | Universal | 328,6 | 4,3 | Metalexport | 447,5 | 6,9 |
| 5 | Metalexport | 607,3 | 5,6 | Coopexim | 344,5 | 4,5 | Elektrim | 337,9 | 5,0 |
| 6 | Elektrim | 454,9 | 4,2 | Baltona | 204,7 | 2,6 | Varimex | 297,7 | 4,6 |
| 7 | Animex | 455,6 | 4,2 | Elektrim | 217,9 | 2,7 | Tabakimpex | 209,8 | 3,1 |
| 8 | Varimex | 382,9 | 3,4 | Ciech | 181,5 | 2,4 | Impexmetal | 205,8 | 3,0 |
| 9 | Coopexim | 244,4 | 2,3 | Metalexport | 148,4 | 1,9 | Pol-Mot | 200,7 | 2,9 |
| 10 | Pol-Mot | 223,3 | 2,1 | Skórimpex | 90,1 | 1,2 | Polimex-Cekop | 194,3 | 2,9 |
|  | Razem 10 pHZ (5) | 8441,4 | 78,0 | Razem 10 pHZ (5) | 6684,5 | 87,3 | Razem 10 pHZ (5) | 4828,5 | 71,8 |
|  | Pozostałe pHZ (6) | 2373,5 | 22,0 | Pozostałe pHZ (6) | 652,8 | 12,7 | Pozostałe pHZ (6) | 1896,1 | 28,2 |
|  | Ogółem (7) | 10814,9 | 100,0 | Ogółem (7) | 7337,3 | 100,0 | Ogółem (7) | 6725,5 | 100,0 |

Source: Author's study and calculations based on data of the Department of Shipping and Transport of the Ministry of Foreign Trade and Maritime Economy.

Key:
1) Rank
2) Foreign trade enterprise
3) Turnover
4) Export
5) Total of 10 foreign trade enterprises
6) Remaining foreign trade enterprises
7) Grand total

In 1978 the main directions in which Polish foreign trade merchandise was transported by air were: Export--European socialist nations (29.4 percent), North and Central America (25.3 percent), Africa (18.4 percent), European capitalist nations (15.5 percent) and the Near East (0.3 percent); Import--European capitalist nations (49.9 percent), Africa (13.5 percent), North and Central America (12.6 percent), Near East (12.2 percent) and European socialist nations (7.2 percent).

Contrary to world trends, the most significant portion of air transportation of Polish foreign trade commodities was transport within the European continent (approximately 50 percent of turnover by weight). The majority of these shipments still involve easily perishable goods, which cannot readily take longer transport time, samples and models, and valuable as well as easily damaged shipments. In the area of imports, up to 90 percent of shipments (usually very small) involved fragile, assembly, cooperative and licensed supplies. One Polish foreign commerce enterprise which takes advantage of air transport as an instrument of competition in foreign markets, especially those overseas, is TEXTILIMPEX.

The quantity of merchandise which may be transported by air is influenced by the material make-up of our turnover, which is characterized by the domination of bulk cargo unsuited to air transport, first of all raw materials and fuel. The portion of general cargo in overall Polish foreign trade (by weight in 1978) within which it would be possible to look for potential air cargo is estimated at only approximately 15 percent of the total turnover, including approximately 16 percent of the imports and approximately 13 percent of the exports (author's estimate).

The rates are even lower for that portion of the general cargo in overall Polish foreign trade which is transported by sea; this is a branch with regard to which air transport is particularly competitive, in view of the great advantage in the realm of offered delivery time. The rates are 7.6 percent for overall turnover, 10.3 percent for imports and 5.6 percent for exports.*

The major portion of Polish foreign trade merchandise (approximately 80 percent) is exported to, or imported from, other European countries, especially socialist countries. This means the transportation of goods on intracontinental routes, where air transport is not very competitive in relation to other branches of transport.

Independent of these basic structural causes for the low participation of air transport in shipping there is the fact that many of our enterprises taking part in international trade still seem not to have grasped the advantages gained from the air transportation of goods. This opinion may be confirmed by frequently-cited superficial comparisons between air freight costs and costs of other transport branches, not taking into account peripheral transport costs, especially those connected with saved delivery time. Practically none of the Polish foreign trade enterprises have yet made any attempt to evaluate potential benefits which could be brought them by wider use of air transport in their activity.

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*These rates were estimated by the author on the basis of data of the Department of Shipping and Transport of the Ministry of Foreign Trade and Maritime Economy.

The situation for users of air transport is very unfavorable as regards the quantity and quality of services offered in the marketplace of international air freight transport to and from Poland. The small supply of services of interest to us is the result, first of all, of the lack of regular freight connections as well as of limited means for transporting merchandise in passenger planes on routes to and from Poland. To a great extent this situation results from the limited transport means at the disposal of LOT Air Lines for the following reasons:

--freight transport is handled by our transport agent primarily within the framework of regular connections by passenger planes, which carry cargo on the basis of available baggage compartment space;

--LOT does not have all-cargo aircraft devoted to the transport of goods, nor any "convertible" aircraft;

--the three IL-18 passenger planes which were removed from regular routes and adapted for cargo transport are planes of medium range, which precludes using them for longer-distance transport. Another factor limiting their transport possibilities is the small size of the aircraft doors, which makes it impossible to load larger-size cargo or standard IATA cargo units.

The above factors result in ever-increasing participation by foreign carriers in the Polish foreign trade transport, which cannot be prevented by the intensively expanding charter flights organized by LOT. The quantity and quality of air transport services offered to Polish foreign trade enterprises is also determined by the air transport infrastructure and superstructure existing in Poland. One airport in Poland which is adapted for use in international cargo transport is Warsaw-Okecie.

In 1978, the Warsaw-Okecie Central Airport serviced 8,300 tons of Polish foreign trade goods (total including domestic--13,106 tons), which, in terms of cargo service, places it in the category of the smallest international airports in Europe. This is also linked to this airport's inadequate warehouse support bases.

Transport services offered to transport users who send their goods from Warsaw are also characterized by a disadvantageous transport charge level.

Small transport capabilities, lack of connections between Warsaw and many important world airports as well as the disadvantageous price situation for transports from Warsaw makes it necessary to organize interrupted transports combined with forwarding at large Western European airports (especially Frankfurt/Main). A particular role is played here by automobile-air transports or collective shipments organized by the Polish air-forwarding agent, C. Hartwig, International Forwarding Agent, Warsaw, in cooperation with Western European forwarding agents, which, of course, amounts to the importing of forwarding-transport services from a second payments area.

A marked speed-up in the rate of growth of turnover in Polish foreign trade both in weight and in value is observable in the 1970's. In 1970-1978 the turnover of Polish foreign trade grew by 52 percent in weight and nearly 230 percent in value. Analogous rates for exports during this time were 36.5 percent and 204.9 percent respectively and for imports, 71.5 percent and 251.4 percent respectively. The result of these changes is, among other things, an increase in the per-ton value of Polish foreign trade cargo turnover (see Table 5). To a great extent this is also the result of changes which are coming about in the material structure of Polish foreign trade as well as a result of the inflationary price growth in international trade.

Table 5. Average Value of One Ton of Cargo in Export, Import and Total Turnover of the Polish People's Republic, 1970-1978 (current prices)

(1) (2) (3)

| Lata | Obroty globalne | Eksport | Import |
|---|---|---|---|
| 1970 | 279,1 | 290,3 | 349,2 |
| 1971 | 347,3 | 318,9 | 382,1 |
| 1972 | 380,8 | 339,6 | 421,3 |
| 1973 | 428,3 | 344,5 | 508,4 |
| 1974 | 528,8 | 429,2 | 634,8 |
| 1975 | 611,3 | 558,3 | 688,1 |
| 1976 | 619,6 | 598,8 | 718,9 |
| 1977 | 692,9 | 633,8 | 734,7 |
| 1978 | 709,8 | 661,1 | 794,4 |

Source: W. Januszkiewicz--"Transport-Forwarding Service of Polish Foreign Trade in 1970-1978," SGPiS [Main School of Planning and Statistics], Warsaw 1979 (typewritten), p 5.

Key: 1) Years
2) Total turnover
3) Export

For many years Polish foreign trade has been intensifying exports of highly processed goods offered through, for example, the electrotechnical, electronics, precision, motor, etc, branches of industry whose products are characterized by a high value/weight ratio, and are thus to a great extent suitable for transport by air. A large export role is played, and will be played in the future, by agricultural and food products and chemical, clothing and leather industry products of which a large portion also qualifies for porfitable transport by air. Similar changes may be observed in the material make-up on the import side. It may be hypothesized that the make-up of goods comprising the turnover of Polish foreign trade will become more and more similar to the make-up of the turnover of highly-developed countries, which will no doubt determine the increase in the need for air transport services.

Polish foreign trade enterprises are increasingly more interested in developing contacts with more distant countries. Our trade policy is directed toward expanding our turnover with developing nations which are, on the one hand, a receptive market for our industrial products, and on the other hand, offer many articles (besides raw materials) which Poland is interested in importing. It is worth mentioning that in the past 5 years our turnover with African, Asian and South and Central American nations has increased over 60 percent by weight.

Intensification of trade contacts with countries outside of Europe should then be the next factor resulting in the growth of the importance of air transport in Polish foreign trade. The growth of Polish exports to these markets will depend not only on their quality and prices but, to a great extent, on the terms and conditions of delivery as well as rapid reaction by our enterprises to changes in demand. Under conditions of stiff competition, air transport may turn out to be the factor enabling expansion of the competitive ability of our export trade, and it sometimes is simply a condition of its success.

If already today it is possible to assume that the potential demand by Polish foreign trade for air transport services is greater than this transport's ability to provide these services, then there should be no question that the need for these services will be increasing in the future.

Against the background of the presented evaluation, a series of demands should be put forward, and their fulfillment could be the determining factor in the rational satisfaction of the transport needs which were discussed. First of all, it will be necessary to increase LOT's transport capabilities and to modernize the infrastructure and superstructure of air transportation in Poland. LOT should certainly--to the advantage of its functioning and to the advantage of Polish foreign trade--expand its transport capabilities within the framework of regular passenger connections, as well as initiate regular freight lines, particularly on international routes. However, orientation toward expansion of freight transport capabilities requires the purchase of modern flight equipment to make such activity possible. Such planes are, for example, wide-body Soviet IL-86's (passenger model or combination passenger-freight model, which would be particularly profitable for a Polish carrier) as well as the IL-76 cargo plane which can transport approximately 40 tons of cargo at a time in standard IATA cargo units. Until it has this equipment, LOT should investigate the possibility of long-term charters or leasing of a freight plane (or even several) from foreign carriers. This could involve equipment the size of a B-707 or a DC-8. The type of equipment utilized will, of course, determine the way it is utilized, but in any case it will still require our carrier as well as the Polish air forwarding agent to intensify their advertising-soliciting activity in this area.

Ownership of this type of equipment by our carrier will make sense if at the same time conditions are created at Polish airports for its rational service. Taking into account Warsaw's principal role as a point of intake and outflow of the majority of air shipments, that airport should be adapted to service the majority of the cargo intended for shipment by air in the future. In my opinion, this airport should be readied for servicing freight on the order of 100,000 tons per year by the end of the 1980's. Of particular importance is the equipping of this airport with modern transshipping equipment, capacious freight terminals, storage grounds and facilities, and the like. Similar modernization and expansion--on a smaller scale, however--are required by the Gdansk, Poznan and Krakow airports.

Concerning our air-forwarding agent, C. Hartwig International Forwarding Enterprise, it is necessary to formulate requirements about the growth of the quantity and quality of services of a technical-organizational nature. Realization of air shipment services, especially their anticipated future growth, requires the development of the forwarding agent's freight terminals, warehouses and storage space, as well as the purchase of modern handling and transshipping devices and also probably his own means of delivery. Of equally great importance are the forwarding agent's advertising-soliciting activities, which he should undertake for the purpose of expanding air transport's role in Polish foreign trade shipping. It seems that it is precisely the air-forwarding agent who should be the promoter of further rational exploitation of air delivery, which has been justified from the point of view of foreign trade enterprises and of the entire national economy.

Our forwarding agents should also be advisers to foreign trade enterprises regarding the choice of transport branch, carrier, or means of transport and should be able to and know how to support a specific choice with appropriate calculations showing the profitability of the selection. The existence in Poland of strict division of competition among five C. Hartwig International Forwarding Enterprises makes it much more difficult to make such calculations, since individual international forwarding agents do not deal with services of all branches of transport. In this situation it seems appropriate for calculations of this type to be made by transport, forwarding and insurance units of the foreign trade enterprises, after first obtaining the opinion of qualified forwarding agents.*

Transport of cargo by air, although it is still of marginal importance in Poland, seems to be more and more often noticeable in the activities of both the Ministry of Communications and the Ministry of Foreign Trade and Maritime Economy. The state and development of the air transort of freight may also, ever more visibly in the future, determine the proper development of Polish foreign trade as well as many other fields of the national economy. In the last several months a plan was formulated to appoint an interministerial commission to deal with the problems of improving the Polish air freight transport situation. We may expect that the effect of this commission's work will be a rational and realistic concept of the development of air freight transport of Polish trade cargo. Let us hope that it will not be yet another program which exists only in ministerial documents.

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* In the opinion of the author, another solution in this area would be the establishment of a new forwarding enterprise of an advisory (consulting) character, whose only task would be to advise about the choice of transport branch, transfer agent, etc, based on making appropriate economic calculations upon instructions of the transport user.

# FOREIGN TRADE STRATEGY--MOVE TO INTENSIVE DEVELOPMENT STARTED

Warsaw HANDEL ZAGRANICZNY in Polish No 1, 1980 pp 5-9

[Article by Jozef Soldaczuk: "Foreign Trade and Economic Growth, and the Intensity of Management"]

[Text] In the discussion currently underway on the conditions of and prospects for the economic development of the Polish People's Republic [PZPR] in the 1980's and on the strategy for economic development in this decade, the need for a more decisive transition from extensive to intensive factors of economic development is particularly being emphasized.

Emphasis is being placed also on the need for full and more intensive use of production apparatus, for a decrease in the energy use and material use of production, for more rational and intensive use of the human factor, that is, work resources, the qualifications and capabilities of the cadres, for more rapid growth of work efficiency, and for an increase in general management efficiency.[1]

Foreign trade and economic relations with foreign countries should play an essential role in the management intensification process. Intensive development which establishes optimal use of Poland's resources and production strengths is closely linked with the development of foreign trade in all its aspects, with the development of production specialization and cooperation on an international scale, that is, with the broader inclusion of Poland in the international division of labor.

The postulates for intensifying management and for including Poland more broadly in the international division of labor are not new ones.[2]

They were formulated as key tasks for Poland's economy in the plans for the economic development of the country in the 1970's which were prepared and adopted for implementation.

The tasks formulated in the resolutions of the 6th and 7th party congresses clearly stated the need to use foreign trade and economic relations with foreign countries as factors for modernizing and intensifying the national economy.[3] In connection with this fact, special emphasis was placed on the need for rapid development of export as a basic condition for the more rapid growth of the import of technology, machinery, equipment, and materials necessary for the development of new branches, and the modernization of existing branches, of production, and for the growing import of consumer goods.

The central element of this program was to promote export development of the Polish economy in a consistent way, to establish the more rapid growth of branches specializing in export than of the whole economy, and--something that goes along with this--the more rapid growth of the coefficients of income flexibility and production flexibility of export than existed in previous periods.

At the same time, this policy was supposed to permit the changeover to a more active credit policy in import (and subsequently also in export), which would allow the more rapid growth of national income for distribution than of produced income for a certain period of time. It was supposed to make it possible to accelerate investments and to obtain a more rapid rate of economic growth. The use of supplemental credit import of the machinery and equipment technology of countries at the highest technological level was to insure the more rapid modernization of industry and the "reforging" of the manufacturing apparatus into a more modern and efficient technology. This factor, in turn, was supposed to enable the more rapid growth of industrial export, a change in the goods structure of Polish export, and an increase in its efficiency. The rapid rate of growth of export, which considerably butdistanced the growth rate of industrial production and of produced national income, was supposed to allow Poland at the same time to keep the ratio of revenues from export to the trade balance deficit (connected with supplemental import on credit terms) within proportions to prevent the deficit from being transformed into a "foreign trade barrier."

The approaching end of the decade of the 1970's shows clearly that the assumptions adopted for this period concerning the results and effects of foreign trade will not be implemented. Despite strong pressure from the central authorities--tasks in this area were formulated clearly in the 5-year and annual plans for economic development and were renewed many times in the implementation guidelines of the party and the government--the plan to insure the pro-export character of development of the Polish economy failed.

The investment acceleration achieved in the years 1971-1975 and the considerable growth of import of technology, machinery, equipment, and materials, especially from the highly developed countries, did not bring about fully the hoped for pro-export effects. The rate of growth of the national income, considerably higher (by nearly two-thirds) than in the previous 5-year period, and the higher (by approximately one-fourth) rate of growth of production property and industrial production yielded only a moderately higher growth rate of the volume of export.

As a result, the coefficients of income and production flexibility of export were decreased considerably in comparison with the period of the 1960's (see Table 1). These coefficients have a relative character that is conditioned both by the growth rate of the national income and by the factors determining this growth rate. I discuss this problem in a subsequent section of the article.

Table 1. Average Yearly Growth Rate of Export and Import Volume in Relation to the Growth Rate of National Income, Investments, Permanent Production Means and Industrial Production (constant prices)

in percent

| | 1956-1960 | 1961-1965 | 1966-1970 | 1971-1975 | 1976-1978 |
|---|---|---|---|---|---|
| Produced national income | 6.6 | 6.0 | 6.0 | 9.8 | 5.0 |
| Production investments | 7.8 | 8.9 | 8.6 | 20.1 | 1.9 |
| Permanent production means | 4.2 | 4.6 | 6.3 | 7.9 | 8.8 |
| Industrial production | 9.7 | 8.5 | 8.3 | 10.4 | 7.0 |
| Export (in volume) | 9.4 | 11.2 | 9.6 | 10.7 | 6.7 |
| Relation of growth rate of export to growth rate of national income (5:1) | 1.42 | 1.86 | 1.60 | 1.09 | 1.34 |
| Relation of growth rate of export to growth rate of industrial production (5:4) | 0.96 | 1.31 | 1.15 | 1.03 | 0.95 |
| Relation of growth rate of export to growth rate of permanent production means (5:3) | 2.23 | 2.43 | 1.52 | 1.35 | 0.76 |
| Import (by volume) | 8.6 | 9.8 | 9.2 | 15.2 | 4.1 |
| Relation of growth rate of import to growth rate of national income (9:1) | 1.3 | 1.63 | 1.53 | 1.55 | 0.82 |
| Relation of growth rate of import to growth rate of industrial production (9:4) | 0.88 | 1.15 | 1.10 | 1.46 | 0.58 |

Source: GUS Statistical yearbooks for the years 1960-1979

But if we accept an average ratio of increment of export volume to increment of permanent production means from the 1960's, then--with the achieved rate of growth of production property--one could expect that the growth rate of export volume would reach about 15-16 percent in the years 1971-1975, and even 17 percent annually in the years 1976-1978. The fact that these levels were not reached was caused by many factors; I will return again to their characteristics.

On the other hand, the growth rate of import increased quite considerably in the 5-year period 1971-1975. The rate of growth of import volume increased from an average annual rate of 9.2 percent in the period 1966-1970 to 15.5 percent in the 5-year period 1971-1975. The value of total import at current prices increased 3.5-fold at this time, and the value of import from the highly developed capitalist countries, 5.5-fold. Since the value of total export at current prices only was tripled, while the value of export to the developed capitalist countries [KKR] increased 2.5-fold, a headlong deterioration of the balance of trade followed, especially with the highly developed capitalist countries. In 1970, revenues from export insured that 98.3 percent of total import was defrayed and that even 108.3 percent was defrayed in turnovers with the highly developed capitalist countries. In 1975, revenues from export defrayed only 82.0 percent of the value of total import and barely 52.4 percent of import in turnovers with the KKR. In the last 5-year period, the rate at which import was defrayed by export--after the lowest level was reached in 1976 (74.0 percent of the value of total import and 51.9 percent of import in turnovers with the KKR)--was improved considerably as a result of so-called rationalization of import. In 1978, the rate at which total import was defrayed by export increased to nearly 88 percent, and to 68 percent in turnovers with the KKR.

Despite improvement, the ratio of revenues from export to expenditures for import in turnovers with the KKR continues to be unfavorable. A negative trade balance and indebtedness, chiefly in convertible currencies, become factors restricting the possibilities for economic growth. The deficit in the trade balance with the KKR accumulated at the end of 1978 totaled (after computation into dollars) in the neighborhood of approximately $14.0 billion. This means that credits totaling more than 1 year's value of total export and more than 3 times the value of yearly export to the KKR had to be entered in the period 1971-1978 to defray the trade balance deficit with the KKR.

Despite a steady ratio of revenues from export to expenditures for import in the last 2 years, attained mainly at the price of weakening the growth of import, the situation continues to be a very difficult one.

What is needed above all to improve this situation is the significantly more rapid growth of export, especially to countries with convertible currencies. For import restrictions cannot solve the situation in a lasting way. For their part, they cause negative secondary effects in the

Table 2. Value of Export, Import, and State of Trade Balance, and Accumulated Deficit and Degree of Defrayal of Import and Trade Balance Deficit with Revenues from Export in the Period 1970–1978

| Year | Export in millions of foreign exchange zlotys | | Import in millions of foreign exchange zlotys | | Trade balance in millions of foreign exchange zlotys | | Degree of defrayal of import with export | |
|---|---|---|---|---|---|---|---|---|
| | Total | To the KKR | Total | To the KKR | Total | To the KKR | Total | To the KKR |
| 1970 | 14,191 | 4,028 | 14,430 | 3,721 | - 239 | + 301 | 98.3% | 108.3% |
| 1971 | 15,489 | 4,622 | 16,151 | 4,407 | - 662 | + 215 | 95.9% | 104.9% |
| 1972 | 18,132 | 5,519 | 19,612 | 6,679 | -1,479 | -1,164 | 92.5% | 82.6% |
| 1973 | 21,355 | 7,303 | 26,103 | 11,597 | -4,748 | -4,294 | 81.8% | 62.9% |
| 1974 | 27,625 | 10,013 | 34,823 | 17,682 | -7,198 | -7,669 | 79.3% | 56.6% |
| 1975 | 34,161 | 10,768 | 41,651 | 20,539 | -7,490 | -9,771 | 82.0% | 52.4% |
| 1976 | 36,600 | 11,711 | 46,071 | 22,528 | -9,471 | -10,817 | 79.4% | 51.9% |
| 1977 | 40,748 | 12,733 | 48,558 | 21,030 | -7,810 | -8,298 | 83.9% | 60.5% |
| 1978 | 44,724 | 13,996 | 50,919 | 20,630 | -6,195 | -6,634 | 87.8% | 67.8% |

SOURCE: Statistical Yearbook for 1971, 1976 and 1978, and the Concise Statistical Yearbook for 1979.

form of poorer supply of materials and cooperation to industry, including poorer supply of production for export. Thus, for their part, import restrictions represent an obstacle to the more rapid growth of export.

The main causes of our difficulties in foreign trade are the inadequate pro-export orientation of the economy and the insufficient rate of growth of export. The economic and financial system has not created and is not creating sufficient motivations and incentives for the growth of export at the level of economic units. Also, the sector ministries have not always and not immediately understood and evaluated the significance of and need for rapid growth of export.

On the other hand, a very high rate of domestic investment and the high rate of economic growth in the first half of the 1970's connected with this caused the very strong growth of domestic demand for raw materials, half-finished industrial goods, machinery and equipment produced in Poland. The rapid growth of wages and money income of the population accompanying this strong growth of domestic demand for Polish goods created a great demand for food and industrial consumer goods on the domestic market at the same time. The strong pressure of the domestic demand absorbed a significant portion of the supply of goods earmarked for export, goods which otherwise could be directed toward export. The pressure of domestic demand simultaneously produced the situation of a "seller's market" for domestic industry to a degree significantly greater than in previous years. For its part, the fact that a "seller's market" situation in Poland coincided simultaneously with the worst economic recession in the West since the time of the Great Depression and with a "buyer's market" situation weakened the incentives to increase export to the KKR.

At the same time, the high rate of economic growth caused a great demand for import to be maintained, despite its rising cost on account of inflation which was intensifying simultaneously (for already adopted investment undertakings and for those in the process of being implemented). Since considerable delays occurred repeatedly in the implementation of investments (i.e. on account of too broad an investment front) and since some of the actuated plants reached their planned production capacity later than anticipated initially, there were also disturbances in the delivery of some raw materials, semi-finished industrial goods, and cooperation parts and elements. This situation created the need for additional imports, most frequently from the highly developed capitalist countries. However, this caused a subsequent, additional strain on Poland's trade balance.

Unfavorable atmospheric conditions over the course of several years and worse than expected agricultural harvests coincided with this strain. Under conditions of a rapidly growing domestic demand for food, especially meat, this made it necessary to import additional grains and feed and to restrict the growth of food exports. All of these domestic factors precipitated the headlong deterioration of the trade balance.

It is not without significance for this situation that the deterioration of conditions for Poland's export on foreign markets occurred in the same direction. However, despite intensified competition and difficulties taking place in access to markets of some capitalist countries, especially the European Economic Community (EEC), the main factors in the inadequate results in export were the insufficient supply of goods earmarked for export, the not always adequate quality and technological level of Polish products, and the lack of sufficient interest on the part of producers and exporters in export and in improving its efficiency.

Presently, the most important problem requiring urgent resolution is the breaking, and at least the significant relaxation, of the foreign trade barrier. This is a preliminary condition, without the resolution of which it is hard to count on the use of foreign trade for more rational economic growth and for an increase in management intensity and efficiency. The foreign trade barrier can be broken only through a high growth rate of pro-export production and of export, significantly outdistancing the overall growth rate of national income and industrial production.

At the same time I would like to emphasize very clearly that the breaking of the foreign trade barrier cannot be attained through the development of so-called anti-import production. The development of anti-import production does not represent an equivalent alternative to pro-export production. It is usually symbolized by the slogan "The cheaper the source of satisfaction of needs--the more expensive." Of course, as a rule anti-import production is easier for Poland's industry, which takes advantage of a production monopoly and of an outlet on the domestic market, than is export production, which has to be sold on foreign markets in competition with other foreign producers. But only pro-export production, confirmed by actual sales and suitable prices, is real testimony to the technological level and the quality of Poland's production and to the efficiency of our activity on foreign markets.

Frequently, anti-import production does not ease the trade balance, and frequently it even further aggravates it. To develop anti-import production it is often necessary to have imported machinery and equipment, and also materials for production, and the import which it is actually replacing is less in general than the import which the development of anti-import production creates directly or indirectly. Moreover, anti-import production can absorb some of the supply of exported raw materials and half-finished industrial goods which could be directed to export.

On the other hand, there is no doubt that it is necessary to activate the maximum incentives for rational economization of import, that is, for the most rational management of foreign exchange means for import. Thus, decreasing the capital absorbency of development and the energy absorbency and material absorbency of current production will simultaneously rationalize import and, relatively speaking, decrease the overloading of the trade balance. Analogically, there is also a need for rational development of industrial cooperation with foreign countries that is based on efficiency accounting, that is in those fields where this really insures higher production efficiency, increases the economy's capacity for export, and heightens export efficiency. But there is no rational development of industrial cooperation with foreign countries without an accounting (for this very cooperation alone).

Similarly, there is no doubt that increasing the efficiency from one hectare in the production of grains and feed, and that the general growth of efficiency in agriculture, that is, also the rationalization of outlays for the development of farm production (including the rationalization of animal feeding), can and should be factors which will cut down on the presently excessive import of grains and feed. However, I think it should be clearly stated that it is not the import of grains and agricultural products which is the main cause of our difficulties with the trade balance and the payment balance. This fact emerges clearly from the table on the goods structure of the trade balance as a whole and broken down according to the socialist countries and the remaining countries.

Table 3 shows that although the import of grains and agricultural products is the largest deficit item in the trade balance with the capitalist countries, at the same time we can state that when the items agricultural products and agro-food industry are considered, the joint result of these two items (the agro-food industry is realizing a significant surplus in turnovers with the capitalist countries) yields a deficit of more than 2.5 billion foreign exchange zlotys, and this is less than the deficit in the item chemical industry products, and the very same as the deficit in the item electromachinery industry products. The main cause of our deficit lies in the fact that our export, especially in the three items metallurgy, machinery, and chemical products, is not growing fast enough despite huge investments made in this branch of industry.

In the long run, resolving Poland's payment difficulties can bring about only a correspondingly rapid growth of export, especially of industrial export. We should realize at the same time that a simultaneous comprehensive change in the goods structure of our export is necessary.

For a long period in Poland's postwar development, deficits in the items raw materials and half-finished products for industry, machinery and equipment, and chemical products offset a surplus in the balance of turnovers in the items fuels, agricultural raw materials, and food. In the remaining goods groups (light industry, wood industry, mineral industry), turnovers were offset in principle or even yielded certain surpluses.

Beginning with the second half of the 1960's, the surplus of the balance in the groups agricultural raw materials and food gradually decreased, and it has been changed to a rising net deficit at the present time.

Table 3. Structure of the Trade Balance of the Polish People's Republic in 1978 as a Whole and in Turnovers with the Socialist Countries and Capitalist Countries in Millions of Foreign Exchange Zlotys

| Group of Branch | Import | | | Export | | | Trade Balance | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | w/SC | w/CC | Total | w/SC | w/CC | Total | w/SC | w/CC |
| Total | 50,919 | 27,590 | 23,329 | 44,724 | 27,303 | 17,421 | -6,195 | - 287 | -5,908 |
| Fuels and energy | 6,569 | 5,159 | 1,399 | 6,977 | 3,058 | 3,902 | + 408 | -2,101 | -2,503 |
| Metallurgy | 6,212 | 3,173 | 3,033 | 2,862 | 1,256 | 1,741 | -3,350 | -1,917 | -1,292 |
| Electromachinery industry | 20,775 | 13,271 | 7,512 | 21,020 | 16,081 | 4,930 | + 245 | +2,810 | -2,582 |
| Chemical industry | 5,958 | 2,124 | 4,036 | 3,623 | 2,348 | 1,272 | -2,335 | + 224 | -2,764 |
| Wood and paper industry | 1,018 | 635 | 373 | 1,073 | 328 | 732 | + 55 | - 307 | + 359 |
| Light industry | 2,088 | 1,214 | 910 | 4,294 | 2,949 | 1,359 | +2,206 | +1,735 | + 449 |
| Food industry | 2,546 | 717 | 1,796 | 2,952 | 628 | 2,334 | + 406 | - 89 | + 538 |
| Agricultural products | 5,753 | 1,287 | 4,270 | 1,923 | 655 | 1,151 | -3,830 | - 632 | -3,119 |

w/SC = with the socialist countries
w/CC = with the capitalist countries

Calculations according to the Concise Statistical Yearbook for 1979, pp 172 and 173.

At the same time, on account of the rapid increase in demand for liquid fuels and the more rapid increase in the prices of these fuels on international markets than in the prices for coal, the surplus in the item fuels and energy decreased conspicuously (and even turned into a deficit in turnovers with the socialist countries) and in a short time may disappear completely.

Improving the trade balance and achieving a payment surplus in the future will require maximum export effort in all goods groups, and primarily in the area of broadly conceived industrial export, including machinery and equipment in particular.

This requires comprehensive changes in the economic system, and, in particular, the elaboration and introduction of those institutional solutions which would create conditions and motivation for economic organizations to develop specialized pro-export production more rapidly, to increase export, and to improve its efficiency. It seems that there is a need for formation of strong preferences for export, i.e. by insuring the possibility of use of a significant part of the foreign exchange means obtained from export, by the economic organizations which earn them, for the further development of their pro-export investments, for the self-financing of technological progress and of import of technology, for the development of a network of cooperative enterprises in Poland and in third countries, for the development of a network of sales, service stations, etc.

It would be a matter of forming a system in which the development of export would create further possibilities of development for those economic organizations which are already getting positive results in export at the present time.

The evaluation of the growth rate of Poland's export for the future should be based on an evaluation of the needs and possibilities of Poland's economy, on the one hand, and should consider developmental tendencies on foreign markets, on the other hand.

Familiarization with the United Nations' prediction for the 1980's and 1990's, prepared under the direction of Prof W. Leontief, can be helpful in evaluating the opportunities for development of our export and the directions of specialization.[4] This prediction was published in 1977 (and thus takes into account the conclusions emerging from the energy crisis); although it is highly aggregated, it still provides a general orientation as to the possibilities and opportunities for development of export in the most important groups of industrial products and as to the rate of this growth.

The fact that this publication, in isolating the main groups of countries, also isolates the group of socialist countries of Eastern Europe (excluding the USSR) is particularly interesting for us. In connection with this, it gives a detailed orientation as to the opportunities for Poland to develop

Table 4. Prediction for World Export of Industrial Products for the Years 1980-1990 and 1990-2000
(average yearly rates of growth in percent at constant prices)

| Group of Products | World as a whole | | Western Europe | | Eastern Europe (exluding the USSR) | |
|---|---|---|---|---|---|---|
| | 1980-1990 | 1990-2000 | 1980-1990 | 1990-2000 | 1980-1990 | 1990-2000 |
| Processed foods | 2.7 | 3.7 | 3.9 | 3.9 | 2.8 | 4.1 |
| Wood and wood products | 6.7 | 4.7 | 6.9 | 4.7 | 7.2 | 5.0 |
| Paper | 8.0 | 6.1 | 9.3 | 6.6 | 9.6 | 7.2 |
| Textiles, clothing | 7.6 | 7.2 | 7.5 | 6.8 | 8.7 | 7.2 |
| Rubber products | 8.2 | 7.2 | 8.5 | 7.4 | 9.6 | 7.2 |
| Industrial chemicals | 5.8 | 5.0 | 6.9 | 5.3 | 5.8 | 6.1 |
| Chemical fertilizers | 7.2 | 3.1 | 9.7 | 2.8 | 10.4 | 3.6 |
| Other chemicals | 7.4 | 6.2 | 8.4 | 6.9 | 7.1 | 6.4 |
| Glass and glass products | 9.1 | 6.4 | 9.5 | 7.2 | 9.9 | 7.7 |
| Metal products | 5.0 | 3.3 | 5.7 | 3.8 | 7.8 | 5.3 |
| Nonelectrical machinery | 6.5 | 5.1 | 7.8 | 5.5 | 8.2 | 6.7 |
| Electrical machinery | 7.6 | 6.7 | 7.5 | 7.2 | 8.7 | 8.0 |
| Motor vehicles | 7.1 | 5.9 | 8.2 | 6.7 | 9.7 | 7.9 |
| Transport materiel | 5.5 | 5.0 | 4.0 | 3.9 | 7.1 | 5.5 |
| Airplanes | 6.5 | 4.2 | 8.1 | 6.0 | | |
| Tools, instruments, precision apparatus | 7.1 | 5.2 | 8.6 | 5.8 | 9.6 | 7.2 |
| Other industrial products | 5.1 | 4.4 | 5.9 | 4.4 | 7.2 | 9.6 |
| Total export | 6.2 | 4.8 | 7.1 | 5.8 | 8.7 | 6.6 |

SOURCE: Author's calculations based on the data contained in Appendix VI to W. Leontief's work, op. cit.

its export. In Table 4, inserted here, we present data concerning the growth rate of the main groups of industrial goods in the 1980's and 1990's for the world as a whole, for Western Europe, and for Eastern Europe. In our opinion, it allows us to evaluate in greater detail the development opportunities for our industrial export.

It follows from the data presented that the general growth rate of world trade in the 1980's calculated by volume, that is, at constant prices, can run within limits of 6 percent on an average yearly basis. The export of electrical and energy machinery and equipment, motorized vehicles, airplanes and air materiel and tools, instruments, and precision apparatus, primarily, have opportunities for more rapid growth in the machine industry. World export in these groups of machinery and equipment may grow within limits of 6.5-7.5 percent, and the export of the Western European countries, within limits of 7.5-8.5 percent. The export of the countries of Eastern Europe may demonstrate an even more rapid growth rate on account of significantly less share in world export at the starting point. On the other hand, the export of transport material (railroad and ship), the export of simple metal products (including here half-finished steel products, rolled products, casting products, construction and installation materials, etc) may increase more slowly than the average world export rate. Within the group of chemical products, the export of chemical fertilizers and other chemical products has a chance to increase more rapidly than the average world export in the decade 1980-1990. On the other hand, the export of so-called basic industrial chemistry has less chance of increasing faster than the average world export rate.

It is interesting that Leontief's prediction gives the group of traditional industrial exports such as textiles and clothing and products of the rubber, mineral (glass and glass products), paper, etc industries quite a good chance for development. The growth rate in these groups should not be less and may even be greater than in the area of machinery industry products. As in the remaining industrial groups, Eastern Europe has a chance for more rapid growth than the general world export growth rate and than the export of Western Europe.

Thus, drawing conclusions for Poland, we can state that there is no reason for our export of industrial goods (including machinery and equipment) to have to increase at a slower rate than that of the whole group of countries of Eastern Europe altogether (excluding the USSR). But a necessary condition here is the working out of suitable, particular specialization (only the economic organizations exporting directly can achieve this) and the insuring of suitable economic and organizational conditions.

From the standpoint of industrial potential, our country is backing this development of export. The data cited in Table 1 concerning the ratio of actually realized export to permanent production means indicate significant unused possibilities. The task of the first 5-year period of the 1980's will therefore be primarily to use these potential possibilities.

Therefore, the minimum growth rate of Poland's export in the period of the coming 5-year plan cannot be less than 6 percent annually, figuring at constant prices. A lower rate would cause a decrease in our share in world trade. Thus, it would contradict the fundamental strategic postulate of increasing the involvement of our economy in the international division of labor. Moreover, growth rate of export less than 6 percent would make it impossible to improve the situation of the trade balance and payment balance and to relax the foreign trade barrier.

## FOOTNOTES

1. P. Bozyk, "Possibilities for Poland's Socioeconomic Development in the 1980's," NOWE DROGI, No 1, 1979.
2. Cf J. Soldaczuk, "Foreign Trade as a Factor in the Intensive Development of the Economy," NOWE DROGI, No 9, 1970.
3. P. Bozyk, op. cit.
4. W. Leontief and Staff, "Future of World Economy, U.N. Study," New York, 1977.

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ROMANIA

## EFFECTS OF UNIFORM TERRITORIAL DEVELOPMENT POLICY TRACED

Bucharest REVISTA ECONOMICA in Romanian No 12, 21 Mar 80 pp 7, 10, 16

[Article by Prof Dr Mircea Bulgaru: "Harmonious Development of the Territory—an Expression of Socialist Equity"]

[Text] The qualitative transformations and changes of vast proportions distinguished in the Romanian economy in the 15 years that Comrade Nicolae Ceausescu had been in the highest party position strongly bear the stamp of the innovative, profoundly scientific, revolutionary thought of this great personality of Romania. The rational territorial distribution of the production forces and the sensible organization of the whole territory of the country, in a unitary and wide-ranging view, constitute an essential component of the innovative view concretized in the great achievements obtained in our economic and social development. "Only in this way," Comrade Nicolae Ceausescu pointed out, "are there provided the raising of the degree of civilization of all the localities, the elimination of the migration of the population to the big cities, the harmonious transformation of the whole social structure and life, the forging of full equality in working and living conditions, the exercise of rights and the affirmation of all citizens of the country in the field of social life."

The concept of rational development of the production forces on the territory of the country combines organically the social and zonal division of labor, which contributes to as rational a dimensioning as possible of the concentration and specialization of production, of the mobilization of the factors of economic growth in each zone in order to raise labor productivity, to gradually eliminate the differences between physical and intellectual labor, between agricultural and industrial labor, in order to reduce the gaps between the village and the city and to provide for the raising of the quality of life, for the creation of equal living conditions for the whole populace. It is thus a question of a profoundly equitable view regarding territorial development, representing a unitary, coherent system of principles, priorities and long-term objectives, meant to draw into economic life all localities of the country, inaugurating a field of wide openings toward a steady process of economic and social homogenization.

The party's profoundly equitable view regarding territorial development is characterized by a number of principles, objectives and functions of a deep political, economic and social significance that involve all aspects of current and future development. As a function and an objective, the policy of territorial development is integrated organically into the supreme goal of the socialist society--the systematic raising of the people's material and spiritual standard of living. In this regard, the territorial distribution of the production forces makes it possible to fully and efficiently utilize material and human resources, in order to provide harmonious development of the counties of the country, with equal living conditions and a high standard of living being provided to all working people, regardless of nationality and regardless of the place where they work.

Basic economic, social and ecological criteria existing in a close interdependence, integrated organically into the general priorities of development, lie at the basis of implementing the party's policy of distribution of the production forces on the territory. From the economic viewpoint, the aim is to move production close to the resources of raw materials and the centers of consumption, to concentrate and integrate production, to stimulate economic cooperation by enterprises, thus responding to the basic objective of growth in economic efficiency. In Comrade Nicolae Ceausescu's view, with the respective economic criteria there are associated those of a social order, this having even a priority character under certain conditions. They refer to the need to rationally utilize the human resources in each county and locality, the raising of the degree of stability of the population in the zone, the achievement of territorial demographic equilibrium, of village-city equilibrium, the raising of the degree of urbanization, the improvement of the social structure, the providing of full equality in rights to all citizens of the country.

Industrialization has been noted as a decisive factor in each zone's development, in order to utilize even more the reserves of latent material and human capacities on a local level and, at the same time, draw the masses into the process of management. Of course, by harmonious development of the country's counties as a basic condition for utilising material and human resources one should not understand a rise in the production of all branches to an equal extent, a reproduction of the economy's general structure in each zone or county--a matter pointed out often by Comrade Nicolae Ceausescu. Since natural and economic conditions differ according to territory, it seems natural for each zone to have a more limited branch structure than the economy as a whole, a fact that does not exclude differences in the economic profile of each zone or county under the conditions of bringing their levels of development closer together.

Being grounded on precisely such basic principles, territorial development is conceived in a view that integrates economic and social efficiency not only from the viewpoint of the present situation but also from that of a wide perspective that incorporates the maintenance of basic equilibriums and proportions between industry and agriculture, between the structure of the population in the rural and urban areas, between the ratio of incomes for different categories of population, and, in general, the attainment of a high level of culture and civilisation in each locality and zone.

Through actions and measures initiated by the secretary general of the party, Comrade Nicolae Ceausescu, concrete forms and a proper political and organizational framework for implementation, as well as suitable economic factors, have been associated with the concept of the policy of territorial development. In Comrade Nicolae Ceausescu's view, the forms of social organization and management are not immutable, set once and for all; they undergo a process of social "wear and tear" on the way and so must continually be improved in step with the changes that occur in life, with the new elements that arise continually in the objective process of development. The country's present administrative division, accomplished on the initiative of the secretary general of the party not long after the ninth congress, which has constituted a better framework for the harmonisation of the economic and social objectives on the territory, for the faster uplifting of insufficiently developed zones, for a wider and more complex opening up of socialist construction, also joins in this dialectic view.

Through the territorial-administrative organisation of the country into counties, cities and communes, some intermediate links and levels, either outmoded or forcedly created, were eliminated, with new, more viable organisational bridges being established between localities, which has stimulated to a high degree the movement of local management close to the requirements of production and of the social interests. An organic and complex process of systematisation of the territory, the cities and the villages, a process based on a system of original principles, means and forms that respond to the requirements of civilisation, has been conceived and is in the course of going on. Within this framework, the main instrument for implementing the territorial policy is also worth pointing out: the sole national plan for economic and social development, with ramifications and connecting bridges joined organically in branch and departmental form and in territorial form. The proper framework for responding to the tactical lines of zonal development, of economic and social uplifting of the less developed counties and localities, for the creation of equal living conditions for all citizens of the country, is created by means of the territorial model. In addition, the participation of the masses of working people in making the decisions, in developing the democratic forms, in managing the public affairs of the zone and the locality, constitutes an essential characteristic of the entire process of economic and social development in territorial form.

Starting from the economic and social criteria that are the basis of the placement of the production forces on the territory, the investments have been oriented toward the basic directions of industrialisation and modernization of the economy, with significant growth thus being achieved in all counties of the country and especially in the ones less developed in the past. The steady orientation of investments in territorial form toward the lagging zones in the 15 years of splendid successes in Romania's socialist construction follows clearly if we compare the growth of investments in the 1976-1978 period in relation to the 1961-1965 period for groups of counties according to the degree of industrialization (see Table 1).

Table 1. The Grouping of the Counties According to the Volume of Per Capita Gross Output and the Growth of Investments

| Group I | | Group II | | Group III | |
|---|---|---|---|---|---|
| Counties with a low degree of development (up to 25,000 lei of per capita gross output) | Average annual growth of investments 1976-1978 / 1961-1965 % | Counties with an average degree of development (25,001-35,000 lei of per capita gross output) | Average annual growth of investments 1976-1978 / 1961-1965 % | Counties with a high degree of development (over 35,000 lei of per capita gross output) | Average annual growth of investments 1976-1978 / 1961-1965 % |
| Bistrita-Nasaud | 995 | Alba | 597 | Bacau | 298 |
| Botosani | 502 | Arad | 425 | Braila | 313 |
| Gorj | 897 | Bihor | 382 | Caras-Severin | 460 |
| Ialomita | 386 | Buzau | 788 | Cluj | 421 |
| Ilfov | 418 | Constanta | 876 | Mures | 256 |
| Salaj | 959 | Covasna | 947 | Timis | 508 |
| Suceava | 321 | Dimbovita | 844 | Arges | 397 |
| Teleorman | 283 | Dolj | 270 | Brasov | 564 |
| Tulcea | 648 | Harghita | 488 | Hunedoara | 219 |
| Vaslui | 628 | Iasi | 560 | Galati | 485 |
| Vrancea | 567 | Maramures | 283 | Prahova | 402 |
| Vilcea | 790 | Mehedinti | 482 | Sibiu | 400 |
| | | Satu Mare | 659 | Municipality of Bucharest | 385 |
| | | Neamt | 403 | | |
| | | Olt | 339 | | |
| Overall average for the group | 523 | Overall average for the group | 502 | Overall average for the group | 331 |

Source: Processed from data published in "Anuarul RSR" [The Yearbook of the Socialist Republic of Romania], 1979.

Along with the orientation of investments in the direction of the creation and modernization of the technical-material base and, in particular, of industry, a certain restructuring in the technical base's structure itself has been produced, in the sense of the establishment of new facilities in the less developed counties and the expansion of the existing base by means of reconstruction and modernization of the units existing in the less developed localities. It is worth noting that by means of the investment policy the creation of urban subsystems, through the construction of industrial platforms that would be integrated into the life of the zone under conditions of economic and social efficiency, was pursued in the years after the ninth congress.

In addition, the investments in agriculture--conceived as a basic branch of the economy--and in other branches of material production and the demographic, sociocultural and other investments that accompany development and contribute to the creation of equal living conditions for the citizens throughout the country have been intensified in accordance with local conditions. Another fact with a demosocial character is also worth noting. As a result of the priority general development of the zones with a low level of economic development, a high rate of social changes has also been achieved--for example, with regard to the growth of the worker personnel contained in all sectors of social activity in relation to the evolution of the population. In 1978, as compared with 1965 taken as a year of reference, with an increase in worker personnel by a factor of 1.62 in the country as a whole, these increases are far higher in the less developed zones: a factor of over 2 in Bistrita-Nasaud, 1.9 in Botosani, 2.2 in Buzau, 1.94 in Covasna and Vilcea, 2.12 in Dimbovita, 1.97 in Gorj, 1.82 in Harghita and Vaslui, 1.84 in Iasi and Teleorman, 2.12 in Olt and 2.13 in Salaj.

Trying to examine by zones the retrospective of the 15 years of great achievements in the development of Romania, besides the profound changes that Romanian society in its entirety has undergone, one can also distinguish the deep changes from a quantitative and qualitative viewpoint in the territorial structures, in their typology and evolution. By virtue of the relationship that exists between the economic structure and the social structure, we will try to identify a few correlations in this regard that attest to the profound changes in our territorial structures, found at the hieght of the process of settlement (see Table 2).

Table 2. The Grouping of the Counties in 1978 According to the Volume of Per Capita Industrial Production and the Main Economic and Social Indicators

| Groups of counties according to the value of per capita industrial gross output | Number of counties | Population (thousands of persons) | Natural growth per 1,000 inhabitants (%) | Fixed assets per capita (lei) | Industrial production per capita (lei) | Agricultural production per capita (lei) | Worker personnel per 1,000 inhabitants (persons) | Value of sales of goods per capita (lei) | Degree of urbanization (%) |
|---|---|---|---|---|---|---|---|---|---|
| Total in the Socialist Republic of Romania | 40 | 21,854.6 | 9.4 | 60,000 | 36,500 | 5,800 | 318.0 | 8,458 | 48.6 |
| A. Over 500,000 lei per capita | 7 | 5,664.4 | 7.9 | 87,700 | 62,400 | 3,100 | 422.51 | 11,300 | 72.95 |
| B. 35,001-50,000 | 6 | 3,487.6 | 8.2 | 60,200 | 40,600 | 6,000 | 337.7 | 8,900 | 51.68 |
| C. 25,001-35,000 | 15 | 7,532.0 | 9.6 | 52,520 | 30,600 | 6,500 | 292.0 | 7,600 | 43.03 |
| D. Up to 25,000 | 12 | 5,170.6 | 11.2 | 44,200 | 17,500 | 7,700 | 230 | 6,000 | 28.5 |
| Ratio A/D | - | - | 0.70 | 2.0 | 3.6 | 0.40 | 1.83 | 1.88 | 2.6 |

Source: Processed from data published in "Anuarul Statistic al RSR" [The Statistical Yearbook of the Socialist Republic of Romania], DCS [Central Directorate of Statistics], 1979.

One notes the fact that in the economy as a whole, as a result of socialist industrialization and the modernization of production, our country has attained significant technical growth and economic growth with favorable influences on the living conditions of the population, on the modernization of the democonomic and -social structures and on the expansion of the degree of urbanization--which attained 48.6 percent as a whole in 1978.

Under the conditions of rapid rates of growth as a whole, they have been much more marked in intensity in the once lagging zones, which has led to the convergence of the levels of economic development between groups of counties and within them, we being in the presence of a process of formation of typologies with visible directions of homogenization. One also notes a lawlike trend that governs the relationship between development and the changes in the demoeconomic and -social structures. One can observe some still important differences between the zones in the first category, with the highest potential, and the last group of counties with regard to technical equipping, per capita industrial gross output, the degree of urbanization and so on. Some gaps in the absolute level of per capita industrial production according to counties are still significant, this also being in fact the reason why our programs for economic and social development for the coming years still give a privileged place to the zones and counties with a relatively low level of development.

Even a brief reference to the four typologies presented above and mentioned in Table 2 leads to other interesting and important findings that are drawn from this complex process of economic and social homogenization of our country. Group A, which includes six counties* and the Municipality of Bucharest, has the highest degree of economic and social development, it being in a ratio of 2.6 to 1 with regard to the counties in the last category. Parts of these zones are developed and modernized in the old industrial centers (Brasov, Hunedoara and Prahova), and others due to the creation of new centers during the years of socialist construction (Arges, Galati and Sibiu). This zone has a strong technical-material base (87,700 lei of fixed assets per capita), is characterized by a relatively high standard of living and has a degree of urbanization of 73 percent, which puts it from this viewpoint at a level close to that of the developed countries. Group B includes six counties (Bacau, Braila, Caras-Severin, Cluj, Mures and Timis). The counties in this group, with a preponderantly industrial-agrarian character, have a degree of development over the national average, and the majority of the population lives in the urban area. Group C includes 15 counties,** with a population of 7.5 million inhabitants (34.46 percent of the country's population). They have 29.8 percent of the fixed assets, 28.4 percent of the industrial production and 38.6 percent of the agricultural gross output of the country. Of the total urban population, 30.5 percent lives in this zone. The counties in this group have an industrial-agrarian character, they being at the height of the process of modernization of the economic and social structures. According to the degree of industrial development, Group D includes 12 counties,* representing in fact those zones that once appeared as blank spaces in the economic geography of the homeland and were formerly considered "places where nothing happened." On the express instructions of Comrade Nicolae Ceausescu, in the last 15 years these zones have benefited to the full and with priority from a large volume of investments, which, on the whole, was 5 times higher on an annual average in the 1976-1978 period than in the 1961-1965 period.

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* Brasov, Galati, Prahova, Sibiu, Arges, Hunedoara.

**Alba, Arad, Bihor, Buzau, Constanta, Covasna, Dimbovita, Dolj, Harghita, Iasi, Maramures, Mehedinti, Satu Mare, Neamt, Olt.

These counties have also experienced the highest rates of development, rates also favored in fact by the territorial-administrative division in 1968, which opened up for them new possibilities of progress that they did not have before. This zone now contains 24 percent of the population of the country, 11.1 percent of the industrial production and 31.2 percent of the agricultural production of the country, it still having an agrarian-industrial character as a general profile but being at the height of the process of changes and modernization.

It should be nated that in the years of socialist construction, especially after the ninth party congress, through the measures and decisions taken within the framework of the general program for economic and social development and for more rational distribution of the investments and economic facilities on the territory in the once lagging zones and localities extremely important and significant new trends have crystallized with regard to the dimensioning of the migratory flows in time and space. We are referring, in the main, to the process of homogenization and of socioprofessional changes, when territorial mobility, although still extremely high quantitatively, occurs in more limited zones, with the amplitude of the migration being reduced significantly, which causes the process of adaptation and integration of the agricultural population into the new social structures to be done more efficiently and with fewer inconveniences, with the economic and social cost of migration thus being reduced to reasonable limits. However, especially when it is a question of extremely dynamic and complex changes, the formation of the new typologies and territorial structures does not occur smoothly, without any difficulties. It is not hard to understand that the combining of rapid development of the economy, according to branches and subbranches, with elements that appear in development under the influence of the intensive and extensive, internal and external factors and the creation of new dynamic equilibriums also undoubtedly affect the territorial profile and raise new problems in the dimensioning of industry and agriculture on the territory, in the optimization of the village-city migratory flows, in the development of the urban and rural areas, in economic and social homogenization. However, the solving of these problems is put with priority in the economic strategy and tactical lines of the policy of erecting the multilaterally developed socialist society in our country. The model of complex development of Romania in the coming years, inspired and guided by the orientations and guidelines adopted by the 12th party congress, will continue to generate profound quantitative and qualitative changes in the technical-material base, in the economic and territorial structures and the socioprofessional ones, with there being enlarged more and more the base for creating equal living conditions for our whole populace.

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* Bistrita, Botosani, Gorj, Ialomita, Ilfov, Salaj, Suceava, Teleorman, Tulcea, Vaslui, Vilcea, Vrancea.

In the front of economic development, the transition from quantitative development, which will be maintained even further at a high level, to a qualitative leap, to the intensive processes of economic and social development, marks the central point of the whole economy, including the models of territorial development.

Under the current conditions, with a view to more rational territorial homogenization, on the initiative of Comrade Nicolae Ceausescu, a qualitatively new way of judging and measuring territorial development has been adopted, there being a transition from the quantitative level of industrial gross output to a qualitative evaluation, pursuing the development of all the production branches--especially industry and agriculture--in correlation with the size of the population and with the problems that refer directly to raising the quality of life in each zone or locality. As is known from the documents published, in the next five-year period it has been projected that a per capita gross output of at least 70,000 lei will be achieved in each zone.

It is beyond any doubt that under the conditions of dynamic, strikingly qualitative development deep social changes will continue to be produced. The application of the new economic and financial mechanism, the raising of the role and function of the local decisionmaking bodies to a new, higher level, has a decisive contribution in accomplishing the proposed changes.

The rapid economic growth of the industrially less developed counties still remains a central concern. On a wider plane, this requires at a macro and territorial level the intensification of the process of remodeling of industry according to zones, the expansion of the production of the sectors that are small consumers of energy and raw materials, and the reduction of energy-intensive products to the minimum. The implementation of these choices will provide for the reduction of the economic and social cost of the migration of the population, with the policy of placing the economic facilities close to the sources of raw materials and the labor resources opening up a wide area for the very process of urbanization, involving the transformation of about 140 communal centers into agroindustrial cities in the 1981-1985 five-year period.

12105
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## FACTORS INVOLVED IN REDUCING PRODUCTION COSTS STUDIED

Bucharest REVISTA ECONOMICA in Romanian No 12, 21 Mar 80 pp 20-21

/Article by Dr Gheorghe I. Sica, director on the State Planning Committee: "Efficient Actions To Reduce Production Costs"/

/Text/ The systematic reduction of the production costs per unit of product constitutes one of the problems of the greatest importance in the dynamic and efficient development of the national economy. With good reason, the cost of products is considered a defining criterion of economic efficiency, the main pivot of the new economic and financial mechanism. "Special attention will have to be given," Comrade Nicolae Ceausescu pointed out at the Grand People's Assembly in the capital on 6 March 1980, "to raising the efficiency of all economic activity, to achieving the new output, to reducing the production expenses, especially the material expenditures."

This year, through the reduction of production costs, the precise implementation of the plan provisions should provide--in comparison with the achievements in 1979--a total savings of over 34 billion lei, including about 26 billion lei in national industry. At the same time, it should be mentioned that over 64 percent of the rise in profit expected to be achieved in 1980 in comparison with 1979 will be obtained by reducing the production costs, including 50 percent by reducing the material expenditures. The achievement of the levels planned for 1980 and for the whole five-year period will contribute to the proper preparation of the tasks of the next five-year period. Any lag in the tasks established by means of the 1980 plan means an increase in the effort for the immediately following period. Favorable conditions for growth in national income, in socialist wealth, the basis for the contirual development of society, as well as for the raising of the material and spiritual well-being of our whole populace, are provided by means of the marked reduction of production costs.

## Priority for the Elements That Affect the Level of Production Costs

Production costs reflect synthetically the level of labor productivity, the quality and efficiency of the production equipment, the efficiency in the use of the means of labor, the contribution of technical progress to the economization of the objects of labor, the manner of organization of production and labor, the assortment structure of production, the degree of utilization of raw materials, fuel and energy, and so on. As a result, the reduction of production costs, a basic element for growth in national income and in the net income of society, depends on the factors that determine this process. Consequently, in substantiating and judging the level of the production costs, it is necessary to start from the specific consumptions of raw materials, energy resources and manpower per unit of production, the contribution of technical progress, the physical structure of production and the degree of renovation of it, the degree of utilization of the resources of objects of labor, without affecting the quality of the products, the manner of use of machinery and equipment, and so on.

For 1980, in substantiating the target for reducing the production costs, it has been taken into account that 50 percent of the expected savings will be achieved through the reduction of specific consumptions, the recycling of recoverable materials, the utilization of substitutes and the raising of the degree of utilization of raw materials, supplies and fuel, and 30 percent through growth in labor productivity.

The level of the costs in 1980 and the savings expected to be achieved by reducing them in comparison with 1979 are based on programs of measures drawn up in accordance with the targets for the indicators that affect the production expenses (production, labor productivity, the utilization of raw materials, consumption rates and so on). They, as a synthesis of the other special programs in enterprises and centrals, represent the evaluation of the technical and organizational measures and solutions in all other fields that affect the fulfillment of the planned production costs.

Thus, in substantiating the volume and structure of production, it is also necessary to take into account, besides the satisfaction of the necessities of the national economy and of the export demands--priority objectives--their contribution to reducing the production expenses either directly by means of the assortment structure or by means of the achievement of products with high outputs and low specific consumptions.

One of the problems with which a number of enterprises and centrals are confronted is that of the way in which cooperation in production is accomplished. Theoretically and practically, the expansion of cooperation in production presupposes specialization in big manufacturing series, with favorable consequences for the level of the costs. Consequently, cooperation in production constitutes a factor in reducing the costs in the producing units. In their turn, the customers should participate in the process of cooperation only if they have been assured that the level of the price at which they are supplied does not exceed the internal cost that they would have under the conditions of integrated production. Unfortunately, there are also examples of enterprises that do not do cooperation under conditions of efficiency, violating the exigencies of this concept. For example, in 1979, at the "Infratirea" Enterprise in Oradea the production costs were increased by over 15 million lei due to the delivery, by the Alba Iulia Machine Enterprise, of parts cast from FCX /expansion unknown/ cast iron instead of FC /expansion unknown/ cast iron, as the contract on cooperation required. The Tirgoviste "SARO" Enterprise, the Sibiu Machine Enterprise and others also endured such influences on costs.

There are also cases when some subassemblies and accessories, although they have been integrated into manufacture by the enterprises that achieve the final product, are transferred to be made in other units at production and delivery prices that far exceed the costs with which they were achieved under integrated conditions. In 1979, for example, the "milled head" subassemblies were transferred from the Machine Tool Enterprise in Bacau to the Iasi Special Machine Tool Enterprise, where the production cost is 41 percent higher than at the first enterprise.

Technical creation is also one of the factors with a basic contribution to the reduction of production costs. The technical plans in the enterprises, which contain the main actions along the line of technical creation, must provide measures and solutions that lead to the more marked reduction of the consumption rates, the better utilization of indigenous resources, the improvement of the quality of the products, higher outputs and so on. The promotion of new technologies, the assimilation of products with high performances and low consumptions, and the redesigning of the products under manufacture for modernizing them in order to correspond to the exigencies of modern technology are a few ways by means of which technical creation will be able to increase its contribution to the reduction of production costs. For example, the matter of putting into operation the installation for grinding degreasing material at the Galati Iron and Steel Combine will lead to the utilization of domestically produced power coal to a greater extent, accordingly eliminating importation, and will reduce the unit cost of blast-furnace coke by 3 percent. In addition, at the Cellulose and Paper Combine in Drobeta-Turnu Severin, the matter of putting into operation the installation for utilizing the fiber recovered from the station for physical and mechanical treatment and its use in the manufacture of "Duplex" cartons will contribute to a saving of 500 tons of fibrous material per year, with positive consequences for the material balance sheets and the production costs. Consequently, the technical solutions and measures represent the basis for providing a reduction in production costs, with the manufacturing processes being the ones that generate costs and with their optimization having to have as a function and an objective the minimization of expenses.

Although the indicated matters constitute considerations endogenous to the discipline of costs, the evocation of them is done precisely because in practice this understanding of the manner of approach to the problem of production costs and material expenditures is not found everywhere. We feel that regarding the junction between the contribution of the other sections of the plan of the enterprises and the industrial centrals, greater attention must be given and the situation must be verified by the working people's councils in substantiating the planned costs.

## Wide Mobilization of the Existing Reserves

The volume of savings that must be attained this year in the economy as a whole represents about 34 billion lei, of which a contribution of over 75 percent devolves upon national industry alone. Under these conditions, significant efforts to reduce production costs devolve upon the industrial branches that utilize better the base of raw materials and supplies (the machine building industry, the chemical industry, the metallurgical industry, light industry and so on). Of course, the units with economic activities in the other branches of material production (agriculture, construction, transportation, commodity circulation and so on) must also make a suitable contribution to the economization of social labor. It must not be forgotten that there are permanent factors for reducing the costs, such as the raising of the volume and the improvement of the structure of the production or activity in question and the raising of labor productivity on the basis of the promotion of technical progress and the scientific organization of production and labor, but there are also factors specific to the activities of the different branches of the economy that must be mobilized to a greater extent in order to increase the net income.

The new economic and financial mechanism puts in the center of the activity the exigencies of promoting on a much wider scale the intensive processes in economic and social development. In this context, there must also be an approach in a new way to the categories connected with the action of the law of value under socialism, the proper consideration of value relations in general, giving priority to the specific contribution to the process of creation of national income, using the economic and financial factors in the sole national plan for sustained development. In this regard, thorough knowledge of the evolution of the production costs is a primary necessity for the personnel in enterprises, centrals and ministries—it being at the same time a condition for success in the application of any measures connected with the improvement of the efficiency of production and the raising of the profitability of the enterprises.

The achievements in the field of costs require a systemic structural analysis, considering the complex nature of the "costs per 1,000 lei of commodity output" indicator. This indicator reflects both the influences of the volume and structure of production and the evolution of the prices as well as the level of the costs as such per unit of reference. The reduction of the cost as such per product constitutes, in our opinion, an essential objective in the technical and economic activity of the economic units. Unfortunately, this activity does not yet rise to the level of the exigencies of the stage through which we are passing. There are many units that do not devote enough attention to the factors that lead to the economisation of material resources, to the reduction of the expenses in general that influence the level of the costs of products. For example, in 1979, the Central for the Exploitation of Wood obtained good general results in the field of cost reduction, fulfilling the plan and additionally reducing by 1.7 lei the level of the costs per 1,000 lei of commodity output. However, an economic analysis shows that the structure of production and the prices of utilisation contributed to the additional reduction of 2.8 lei in relation to the plan, while the costs per product rose 1.1 lei, a negative phenomenon as such. This is why a critical analysis of the level of the production costs is necessary in any situation.

The production costs and especially the material costs, decisively affecting the net output, must become a major objective of the management of the enterprise. In this context, the calculations of costs must be integrated into a "system of management" as an endogenous factor of the promotion of the intensive processes in the national economy.

12105
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## CONTRACTS FOR PURCHASES OF HOGS, SHEEP DISCUSSED

Bucharest AGRICULTURA SOCIALISTA in Romanian 10 May 80 p 9

/Article by Auras Albu and Aurel Ivan: "Hog and Sheep Contracting and Purchases"/

/Text/ Recently, the task of contracting for hogs and sheep was again entrusted to the consumer cooperative system, which constitutes both a reason for pride and a strong stimulus for its exemplary fulfillment.

Although little time has passed since the adoption of this measure, through close collaboration with the agricultural bodies and with the people's councils a large number of contracts have been concluded.

How is it necessary to act further? What are the methods of contracting for and utilizing the animals? What advantages do the producers have who contract for hogs and sheep with the consumer cooperatives? On this page we propose to answer all these questions.

The experience accumulated thus far shows that the most efficient methods of work in this action are:

The visiting of the producers at home and the convincing of them, by means of economic arguments, to raise and to utilize as many animals as possible;

The personal example of the workers of the consumer cooperatives--in particular--and of other personnel in the villages;

Close collaboration with the agricultural units for providing the material base for the development of animal production;

The wide popularization of the advantages of contracting (by means of the press, radio-relay stations, posters and so on).

All these methods are recommended for use throughout the performance of the contracting operations.

## The Power of the Personal Example

A rise in concern for developing the vegetable and animal agricultural production on the population's farms is sensed in the country's villages and communes. The land in yards and on the lots in use is being utilized better. More and more poultry, hogs and sheep are being raised in outbuildings. The people understand better and better that, proceeding in this way, it is advantageous both for them and for the national economy.

As capable householders, the workers of the consumer cooperative system--chairmen, buyers, managers and so on--have the duty to be the first who conclude contracts, right now, to deliver in 1980 and 1981, and in the years that follow, at least one fat hog, as well as other products. At the same time, it is necessary for the personnel in the villages who have personal farms—mayors, secretaries of the people's councils, chairmen of the agricultural cooperatives, veterinarians, agricultural experts, teaching personnel, farm foremen, team leaders, foresters and so on—to contribute to the fulfillment of the whole plan for contracting and purchases.

For the full success of this action, each cooperative--also soliciting the help of the people's councils--will have to organize special squads, formed of operational and TESA /technical, economic, specialized and administrative/ workers, deputies and members of the village committees of the most active sort, that go to the producers to convince them to contract for and deliver to the state as many animals as possible. In order to put this action on the basis of a clear record of the situation existing in the field, each working person in the consumer cooperatives will be given responsibility for a group of houses near the unit where he works.

Consequently, through the power of the personal example, through close cooperation between the consumer cooperative system and the people's councils, let us successfully fulfill this important task!

## Obligations to the Producers

Right from the start, in the phase of concluding the contracts, the workers of the consumer cooperative system have the obligation to carefully verify, with maximum responsibility, the existence of the material base, as well as the possibilities of developing it on the farm of each contractor. For the producers who do not have the necessary biological material, the help of the socialist agricultural units in each county that have reserves of weaned piglets will be resorted to and, as far as possible, they will be put at the disposal of the contractors. In addition, for increasing the number of brood hogs on the farms of the population, the organizations of the consumer cooperative system will sell to the producers pregnant sows procured, with the help of the county agricultural directorates, from cooperatives, intercooperative complexes and other agricultural units.

As regards the measures for stimulating the raising and utilization of sheep, to the possessors of animals--who contract with the consumer cooperatives for products for the state supply--there will be provided, with priority, through the people's councils the areas needed for pasturing the stock that they possess.

The workers of the consumer cooperatives have the duty to insist, in particular, on the reception of adult sheep, this being in the interest of both the producer and the central state supply.

Table 1. Contracting and Purchase Prices for Sheep

| Category and quality | Contracting and production prices (lei per kg on the hoof) | Maximum purchase prices (lei per kg on the hoof) |
|---|---|---|
| Adult sheep | | |
| 1st quality | 7.00 | 6.50 |
| 2d quality | 6.00 | 5.50 |
| 3d quality | 4.00 | 4.00 |
| Wethers | | |
| 1st quality | 8.00 | - |
| 2d quality | 6.50 | - |
| 3d quality | 5.00 | - |
| Lambs | | |
| In the period of 1 December-10 April | 11.00 | 11.00 |
| After 10 April | | |

Fattened lambs up to 1 year old, delivered at the weight of at least 30 kg, equal 9 lei per kg.

For sheep that meet the conditions for being delivered for exportation, the producers also get, besides the contracting prices, the following bonuses:

| | |
|---|---|
| Young sheep | 4.50 lei per kg on the hoof |
| Adult sheep | 3.50 lei per kg on the hoof |
| Wethers | 3.50 lei per kg on the hoof |

The Advantages That the Contractors Have

As is known, the contracting prices are set according to weight categories (in the case of a hog, for example, the increase can amount to 360 lei). The producers receive advances of up to 60 percent of the value of the products contracted for. The contractors for hogs have the right to buy concentrates, at the retail price, as follows [see Table 2].

The respective quantities of corn are given for the delivery of the hogs at the minimum weight of 110 kg on the hoof, as follows: 50 percent at the time of concluding the contract and 50 percent on delivering the hog.

Although there is an identity between the purchase prices and the contracting prices, more and more producers are choosing for utilisation the way of contracts, since, in the respective form, they gain other important advantages (an advance of up to 60 percent of the value of the contract, between 180-375 kg of corn for each hog contracted for, and priorities in purchasing the construction materials--cement, lumber and so on--needed for setting up the shelters; finally, to all these things is added the obtaining of production loans from the loan cooperatives).

Table 2.

| | Quantity of corn given for a delivered hog |
|---|---|
| a) In the case of contractors who receive piglets from the CAP [agricultural production cooperative] or from other units: | |
| For those who contract for a single hog | 200 kg |
| For those who contract for 2 or more hogs | 250 kg |
| b) In the case of contractors who themselves produce or directly procure the piglets: | |
| For those who contract for 1 hog | 250 kg |
| For those who contract for 2 or more hogs | 300 kg |

Table 3. Contracting and Purchase Prices for Live Hogs From the Farms of the Population

| Weight groups | Contracting and purchase prices (lei per kg on the hoof) |
|---|---|
| 80-90 kg on the hoof | 8.50 lei |
| 90-100 kg on the hoof | 10.50 lei |
| 101-120 kg on the hoof | 12.00 lei |
| Over 120 kg on the hoof* | 12.50 lei |

* With the exception of culled sows and boars, which will be paid for in the category of fat hogs of 101-120 kg on the hoof.

For the success of the action, for fulfilling in the best way the plan for hog and sheep contracting and purchases, the leadership of CENTROCOOP [the Central Union of Consumer Cooperatives] has drawn up a special program that includes a whole range of concrete measures, of which we mention:

The covering of the entire target for receptions for 1980 with contracts, by—at the latest—the end of May;

The providing of the plan for next year by concluding contracts by December of this year.

Starting from the fact that, in the future, the task of providing piglets for the contractors devolves upon the consumer cooperative system, CENTROCOOP has indicated the taking of steps, right now, to organize farrowing houses in all counties by finding all the unused spaces that can be set up with minimum expenses, to immediately proceed to populate them with breeding stock, and to provide fodder through purchases of corn, barley, fodder beets and so on.

12105
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## BRIEFS

JOINT BANK WITH ITALY--Council of State Decree No 322 of 31 August 1979 approves the participation of the Romanian Bank of Foreign Trade in the establishment of the Italo-Romanian Bank with the name "Banca Italo-Romena SpA," with social headquarters in Rome and with operational headquarters in Milan, Italy, under the form of a stock company, having as a partner Banco di Sicilia, Palermo, under the conditions stipulated in the convention and statute for the joint bank. The social capital of the joint bank is 10 billion Italian lira. The share of the participation of the Romanian Bank of Foreign Trade is 50 percent, representing 5 billion Italian lira. [Text] [Bucharest BULETINUL OFICIAL in Romanian Part I No 33, 23 Apr 80 p 1]

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## BRIEFS

**SLOVENIAN CREDITS TO MONTENEGRO**--The linking of associated work [enterprises], not through credit relations but on the basis of linking income, is still quite a rare phenomenon, especially if these are inter-republic contacts. An indication of change in this area, however, is the reconstruction of the "Beograd" and "Beko" department stores in Titograd and the planned investment by the Slovenian economy in this. The reconstruction of these two stores in Titograd will increase the sales space from 7,300 square meters to about 14,000 square meters. Slovenian organizations of associated work now provide these stores with one-fifth of their merchandise, but this is expected to increase. The Slovenian economy will provide about 170 million dinars to reconstruct and complete the department stores. The remainder of the needed funds will be provided by the Titograd opstina and the "Beograd" work organization. About 100 Slovenian production organizations of associated work and 13 basic banks associated with the Bank of Ljubljana will be co-investors. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 26 Mar 80 p 1]

**FOREIGN TECHNICAL AID**--Yugoslavia has scientific-technical cooperation agreements with 70 developing countries and it has concrete programs with about 30 of these. Since the 1950's Yugoslavia has sent about 7,000 specialists to these countries. The largest personnel-training project has been carried out with Nigeria, which has sent 900 young Nigerians to be trained in our country, over 200 of whom have completed their training. As of the end of last year 2,400 Yugoslav specialists were working in various developing countries. From 1954 to the end of 1979, 5,119 Yugoslav specialists have worked in Libya, 456 in Algeria, and [smaller numbers] in the Sudan, Ethiopia, Morocco, and Iraq. About 6,000 foreign citizens have completed school and/or faculties in Yugoslavia and many hold important positions now in the governments and economic organizations of their countries. Yugoslavia offers about 1,200 stipends annually to citizens of developing countries, while about 3,000 students, largely from Arab countries, study in our country at their own expense. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 30 Apr, 1-5 May 80 p 11]

EMPLOYMENT IN KOSOVO--In 1979, 15,132 persons got jobs in Kosovo, including 2,960 with secondary school education, 2,935 skilled workers, 327 with higher-than-secondary school education, 198 with university-level education, 2,112 semi-skilled workers, and 7,694 unskilled workers. Also, last year, 936 workers from Kosovo got jobs in other republics, or 474 more than in 1978. Of this number, 400 went to Slovenia, 137 to Serbia, and 135 to Macedonia. At the same time 507 unemployed workers were retrained, and about 250 of our workers in West Germany received schooling given in their native language. [Excerpt] [Pristina JEDINISTVO in Serbo-Croatian 11 Apr 80 p 7]

RISE IN USE OF ELECTRICITY--Only on the Danube is the water level dangerously low and threatens the production of electric power at Djerdap. But the level on other rivers on which there are electric power plants is satisfactory and the unusually high consumption needs at this time of year are being met. In contrast to estimates, consumption in May is running 12 to 15 percent more than in May 1979. This has been a continuing trend since the beginning of the year. In the first quarter consumption has averaged 14.3 percent more than in the same 1979 period. In May alone the rate of increase in consumption is three times higher, a rise unprecedented in 15 years, according to Mirko Niksic, main distribution officer in JUGEL [Yugoslav Electric Power Association]. The reasons for this high consumption of electricity at this time of the year is not only the increase of the social product, as well as the cold weather, but the fact that high prices and irregular supply of heating oil have forced many consumers to re-orient toward electricity, especially now when heating plants are not operating. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 May 80 p 11]

WORK STOPPAGES--Since 1975 there have been about 200 to 400 work stoppages annually, but because of the lack of sufficient statistical record-keeping, there are no suitable political or economic analyses of these phenomena. In saying that the number of work stoppages is not significant and that they are a phenomena which should not be considered only in terms of quantity, members of the presidium of the SSJ (Federation of Yugoslav Trade Unions) governing council at their last meeting, tried to clarify other aspects of this problem. But despite the unanimous criticism of inadequate action by certain trade union organizations in this regard, the only thing that could be singled out as a general opinion was that such a method of solving workers' problems is not expanding (it was said that the limit on personal incomes at the beginning of this year did not result in an increase in the number of work stoppages) and that they take place more frequently in parts of OOURs rather than in entire OOURs or ROs (work organizations). [Excerpt] [Belgrade EKONOMSKA POLITIKA in Serbo-Croatian 2[illegible] Apr 80 pp 10-11]

APRIL PRICES--Retail prices in April rose 1.9 percent over those of March and 10.1 percent over December 1979 prices. Prices of industrial products which increased 2 percent had the greatest effect on price rises last month, since these prices accounted for 73.1 percent in the structure of the March price index. Prices of industrial non-food products rose 2.1 percent, those of industrial food products rose 1.5 percent, and the price of services rose 3.2 percent compared to March. The cost of living in April was 1.2 percent more than in March and 10.8 percent more than in December 1979. Although food was somewhat more expensive than in March, the major factor influencing the increase was the cost of shoes and clothing which rose 2.5 percent and accounted for 23.8 percent [of the price rise] in the structure of the cost of living index. [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 May 80 p 11]

PRIVATE CONSTRUCTION--In 1979, 89,243 apartments in the private sector were completed, or 2 percent more than in 1978. All republics and provinces increased the number of such dwellings, except Croatia and Macedonia. The highest increase was in Montenegro (13 percent) and Vojvodina (11 percent). [Excerpt] [Belgrade PRIVREDNI PREGLED in Serbo-Croatian 14 May 80 p 11]

MOTOR FUEL FROM PLANTS--In Osijek chemists and food technologists have been trying to produce ethanol from waste matter from agricultural production and industry. The "Crvena Zastava" [automotive] plant in Kragujevac has also been testing the operation of vehicles on a mixture of alcohol and gasoline. Specialists from the Osijek "Saponia" Chemical Industry, in cooperation with specialists from the food-technology faculty of Osijek university, have worked out an initial plan for using recycled raw materials from the fields of the Slavonia-Baranje area and waste material from the wood industry. According to initial estimates, ethanol could be produced in this area from 3.5 million tons of various recycled raw materials such as cornstalks, wheat straw, waste from the wood industry, and reed, containing 1.611 million tons of cellulose. When all these are processed, experts say that 573,400 tons of ethanol could be produced annually. The most important potential raw material in the production of ethanol is sugar beets and discarded parts of sugar beets, then cornstalks, corncobs, wheat straw, waste material from the wood industry, reeds, and other marsh plants. [Excerpt] [Belgrade EKONOMSKA POLITIKA in Serbo-Croatian 21 Apr 80 p 13]

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